

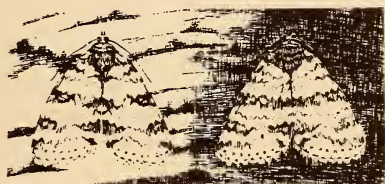
1969

JOURNAL
of the
LEPIDOPTERISTS' SOCIETY

Published quarterly by THE LEPIDOPTERISTS' SOCIETY

Publié par LA SOCIÉTÉ DES LÉPIDOPTÉRISTES

Herausgegeben von DER GESELLSCHAFT DER LEPIDOPTEROLOGEN



VOLUME 23

SUPPLEMENT 2

RECORDS, NEW SPECIES, AND A NEW GENUS
OF HESPERIIDAE FROM MEXICO

by H. A. Freeman

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The Lepidopterists' Society is a non-profit, scientific organization. The office of publication is Yale University, Peabody Museum, New Haven, Connecticut 06520. Second class postage paid at Lawrence, Kansas, U.S.A. 66044.

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H. A. Freeman

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INTRODUCTION

For a number of years I have been working on the Hesperiidæ of Mexico. The summers of 1966 and 1967 were spent collecting rather extensively over that country as well as identifying Mexican material from various museums and collections. The ultimate purpose of this study is to prepare a publication that will include all of the known species of Hesperiidæ from Mexico, giving synonymy, distributional data, keys for identification, and figures of the male genitalia. While in the process of doing this research a number of new records, species, and a new genus have been discovered and the data pertaining to them is discussed in this article.

In preparing the descriptions of the new species where reference is made to the venation of the wings by number, it follows the English system of numbering the veins of each wing from the lowest vein upward, and the space is that space immediately below the numbered vein. Where reference is made to the stigma or brands on the primaries of certain males, I follow Evans in making a distinction between the two terms. The term stigma applies to the specialized patch of tubular scales and androconia extending between the veins, while the term brand or brands applies to the same type of specialized patch or patches that extend parallel with the vein or veins. In discussing the genitalia two terms are used in reference to parts or areas of the valva (=clasper). The cuiller refers to the dorsal, terminal end of the valva, where the style applies to a process originating from the mid dorsal or anterior portion of the valva. In the genus *Epargyreus* Hubner the tip of the style is rounded, projecting anteriorly, with long hairs present which is a characteristic of the genus, while in *Polythrix* the style projects posteriorly and is usually slender and pointed. Other genera have different modifications of these two areas of the valva. The term apiculus refers to the reflexed portion of the antennal club and nudum to the sensory, bared segments of the antennae, lying on the apiculus and sometimes on the un-reflexed portion of the club: nudum 3/12 means 3 segments on the club and 12 on the apiculus, as used in describing the new genus *Windia* Freeman.

ACKNOWLEDGMENTS

I would like to express my thanks to the National Science Foundation for Research Grant GB-4122 which is making this study of the Hesperiidæ of Mexico possible. Through the assistance of Dr. Tarsicio Escalante, Mexico, D.F., many fine specimens of Mexican Hesperiidæ were made available for me to study. I would also like to give my thanks to Mr. William L. Skinner, Physics Teacher, Hillcrest High School, Dallas, Texas, and Mr. Don B. Stallings, Caldwell, Kansas, for making the photographs of the adults used in this article.

PYRRHOPYGINAE

Pyrrhopyge tzotzili Freeman, new species

(Plate 1, figures 1-2)

FEMALE. Upperside: Primaries, deep dull black, immaculate. Fringes, white. Secondaries, dull black, with the outer margin slightly crenulate. Fringes, white.

Underside: Primaries, dull black, with no markings. Secondaries, dull black, with no markings.

Wing measurements: Holotype female: primaries; base to apex, 33 mm; apex to outer angle, 24 mm; outer angle to base, 24 mm; secondaries; base to end of vein 3, 23 mm; center of costa to anal angle, 24 mm. Wing spread: 56 mm.

Abdomen: shiny black, above and below, with an orange tuft at caudal end. Thorax: shiny black above and below. Head: black above. Palpi: dark orange below, with a few black scales intermixed with orange dorsally. Antennae: shaft and club black above and below. Legs: black.

MALE. Unknown.

HOLOTYPE female: Ocozingo, Chiapas, Mexico, July, 1942, sent by Dr. Tarsicio Escalante and will be placed in the United States National Museum, Washington, D. C.

This new species is named for the race of Indians that occupy this region of Mexico. The nearest related species to *tzotzili* is *Pyrrhopyge jonas* Felder, from which it can readily be distinguished by its coloration. In *jonas* the wings are a dark shiny blue both above and below, whereas *tzotzili* has dull black wings.

Mysoria wilsoni Freeman, new species

(Plate 6, figure 1,2. Plate 15, figure 1)

MALE. Upperside: Primaries, dull black. Apex evenly round, only slightly produced. Outer margin straight from apex to outer angle. Fringes outwardly white, basally with a narrow yellow line. Secondaries, bluish-black, costal one-fourth having a purplish luster. Outer margin evenly rounded only slightly produced at anal angle. Fringes white, with slight indication of a yellow line at base.

Underside: Primaries, spaces 1 and 2 purplish black, remainder dull black. Secondaries, dull black. Costa with a narrow yellow line continuing around outer margin to anal angle. Fringes white.

Abdomen: dull black, both above and below. Tip dark red. A narrow yellow stripe on each side. Thorax: dull black, both above and below. A fairly broad, orange-yellow stripe just beneath wings. Head: dark blue, collar dark red. Palpi: blue at tips, remainder dark red. Legs: bluish-black. Antennae: both shaft and club dull black, both above and below.

Wing measurements: Holotype male. Primaries: base to apex, 26.5 mm; apex to outer angle, 20 mm; outer angle to base, 17.5 mm. Secondaries: base to end of vein 3, 18 mm; center of costa to anal angle, 17 mm. Wing spread: 49 mm; paratypes vary from 43 to 52 mm total expanse, average 49 mm.

HOLOTYPE male: Mexcala, Guerrero, Mexico, 23 July 1956, collected by Kent Wilson, will be placed in the United States National Museum, Washington, D. C. There are ten male paratypes from the following locations: five specimens from Mexcala, collected by Kent Wilson during July 1956; two specimens from the same location, collected during August 1958, from the Escalante Collection; one specimen, Taxco, Guerrero, 10 August 1956, collected by Stallings and Turner; and one specimen, Mapastepec, Chiapas, August 1951. These paratypes will remain in my collection.

This species has long been confused with *affinis* (Herrich-Schaeffer) with which it flies in certain areas; however, it can readily be separated from that species by the following characteristics: (1) the most obvious difference is in wing shape, *wilsoni* having broader wings than *affinis*, as the following wing measurements of specimens of equal wing spread show: *wilsoni* - Primaries: base to apex, 26.5 mm; apex to outer angle, 20 mm; outer angle to base, 17.5 mm. Secondaries: base to end of vein 3, 18 mm; center of costa to anal angle, 17 mm. wing spread: 49 mm; *affinis* - base to apex, 26.5 mm; apex to outer angle, 18 mm; outer angle to base, 15 mm. Secondaries: base to end of vein 3, 14 mm; center of costa to anal angle, 15 mm. Wing spread: 49 mm. (2) in *wilsoni*

the outer margin of the primaries to the outer angle is straight, while in *affinis* it is concave; (3) the anal angle of the secondaries is more produced in *affinis* than in *wilsoni*, giving a somewhat concave shape to the outer margin from the apex to the anal angle; (4) on the lower surface of the secondaries the yellow marginal border is much wider in *affinis* than in *wilsoni*; and (5) in the genitalia the upturned, terminal end of the valva in *affinis* is evenly rounded on the ventral surface and the tip does not extend to the top of the valva on the dorsal side, while in *wilsoni* the tip is sharply angled on the ventral side and the terminal dorsal tip extends above the top of the rest of the valva. Compare the genitalia of *wilsoni*, figure 1, plate 15, with *affinis*, figure 21, plate 73, in Godman and Salvin's *Biologia Centrali-Americana*. There are other differences that can be determined by the two figures.

PYRGINAE

Epargyreus windi Freeman, new species

(Plate 1, figures 3,4. Plate 2, figure 1)

MALE. Upperside: Primaries, reddish brown, with discal spots yellowish-orange; spot in 1b varying from a tiny dot to a fairly large, triangular spot, approximately centered between spot in space 2 and outer margin; spot in space 2 fairly large, more or less overlapped by cell spot, vein 3 originates directly over center of this spot; cell spot broader at costal than at dorsal margin, a tiny dot just above this and below costa; spot in space 3 variable, from a small triangular spot to none; two apical spots, upper one fairly large, lower one a minute dot. Costal fold well developed. Fringes sordid white, slightly checkered at vein endings. Secondaries, reddish brown, with basal one-third overscaled with golden-yellow scales and hairs. Fringes sordid white, checkered at vein endings.

Underside: Primaries, brown, with all spots well defined, orange. A gradually widening gray marginal area from space 1a to vein 3, there becoming narrower, then gradually widening again near apex. Secondaries, chocolate brown, with an irregular, macular, silver discal line, more or less straight to vein 5, in space 6 the silvery line situated slightly inward from line in space 5; a large silver central spot extending from space 1c to edge of vein 3, which is convex on its inner surface, produced outward over vein 1 and vein 2, on its outer surface; a silver, linear spot in cell, not connecting to the large central spot. Marginal gray scaling well developed, extending from anal angle to apex, approaching or touching the discal silvery band.

Abdomen: light golden brown above, dark brown beneath. Thorax: dark brown above and below, with a tan line separating the segments.

Palpi: light tan, with some golden scales. Antennae: club and shaft dark brown above, lighter beneath. Legs: dark brown.

Wing measurements. Holotype male: Primaries; base to apex, 30 mm; apex to outer angle, 20 mm; outer angle to base, 17 mm; secondaries; base to end of vein 3, 16 mm; center of costa to anal angle, 23 mm. Wing spread: 53 mm (average of the paratypes, 55 mm).

FEMALE: unknown.

HOLOTYPE male: Ajijic, Jalisco, Mexico, October 3, 1965, collected by Robert Wind, will be placed in the U. S. National Museum, Washington, D. C. Six male paratypes in my collection, all from Ajijic, Jalisco, collected during September and October, 1965 by Robert Wind. It gives me great pleasure to name this new species for him.

Dorsally this species superficially resembled *E. orizaba* Scudder; however, on the lower surface of the secondaries there are differences that can readily be noticed: (1) the silvery, discal band is more macular in *windi* and extends closer to the costa; (2) the large central spot is not connected to the linear cell spot in *windi* like it is in *orizaba*; (3) the marginal gray scaling is much better developed in *windi* than it is in *orizaba*; and (4) the ground color is darker brown, chocolate in *windi*, a redder light brown color in *orizaba*.

The genitalia are different from any of the other species of *Epargyreus*, as can be noted by the figure on plate 2, figure 1.

Epargyreus brodkorbi Freeman, new species

(Plate 1, figure 5,6. Plate 2, figure 2)

MALE. Upperside: Primaries, reddish brown, with some golden hairs and scales near base. Discal spots yellowish, spot in space 1b a tiny dot, midway between spot in space 2 and outer margin; spot in space 2 large, triangular, situated slightly nearer to cell spot than to spot in space 1b, with vein 3 originating over its inner edge; cell spot triangular, not close to spot in space 2; no spot over cell spot near costa; a somewhat linear spot in space 3, situated midway between spots in spaces 1b and 2; one apical spot, minute. Costal fold well developed. Fringes uniform tan, not checkered. Secondaries, reddish brown, with center and basal areas overscaled with golden hairs and scales. Fringes, tan, not checkered.

Underside: Primaries, reddish brown, all spots yellowish orange. A faint area of grayish scales between veins 1 and 3. Secondaries, reddish brown, with some faint gray scaling along central portion of outer margin. Discal line faint, represented by a silvery area

in space 1, becoming indistinct above this region; no central silver spot and only a minute silvery dot in cell.

Abdomen: reddish brown above and below, a lighter line between segments. Thorax: golden brown above, darker brown beneath. Palpi: grayish-tan. Antennae: club and shaft dark brown above, somewhat lighter beneath. Legs: dark brown.

Wing measurements. Holotype male: Primaries; base to apex, 31 mm; apex to outer angle, 20 mm; outer angle to base, 18 mm; secondaries; base to end of vein 3, 18 mm; center of costa to anal angle, 23 mm. Wing spread: 58 mm.

FEMALE: Unknown.

HOLOTYPE male: Union Juarez, Chiapas, Mexico, March 19, 1939, collected by R. Brodkorb. This specimen was sent to me from the Museum of Zoology, University of Michigan. It will be placed in that collection.

Dorsally *brodkorbi* resembles *E. clavicornis gaumeri* Godman and Salvin from Ruatan Island, Honduras; however, the spots are yellow in *brodkorbi* and whitish in *clavicornis gaumeri*. Beneath there is also a general similarity to *clavicornis gaumeri* in the absence of the large silver central spot, and the reduction of the silvery discal line on the secondaries.

The genitalia easily separate this species from any of the other species of *Epargyreus* as can be determined by figure 2, plate 2. In some ways there is a slight resemblance to members of the *orizaba* complex, but no resemblance to the *clavicornis* complex.

Astraptus louiseae Freeman, new species

(Plate 1, figure 7,8. Plate 2, figure 3)

MALE. Upperside: Primaries, deep black, with a green sheen over space 1 and basal region. A band of five white hyaline spots from just before center of costal margin diagonally across each wing towards outer margin; upper spot situated on costal margin, elongated and placed directly over cell spot; cell spot 2.5 mm wide, angled outward at dorsal side. Spot in space 2 broad, 4 mm, its upper, inner edge projected one-third the distance under cell spot; spot in space 3 triangular, situated directly over spot in space 2, its point directed toward cell spot; spot in space 1b linear, located slightly closer to spot in space 2 to outer margin. Costal fold feebly developed. Fringe concolorous with rest of wing except in space 1a, white. Secondaries, deep black, overscaled with greenish hairs and scales, except from costal margin to vein 5. Fringes feebly checkered.

Underside: Primaries, dull black, all spots reappearing. No greenish overscaling. Secondaries, dull black, some faint greenish overscaling at anal angle, extending slightly up anal fold. No other markings.

Abdomen: dull greenish-black above, black beneath. Thorax: dull greenish-black above, black beneath. Head: above greenish-black. Palpi: brownish-black, with intermixed clear white scales. Antennae: club and shaft black above, shaft ventrally lighter brownish, club yellowish. Legs: black, heavy black hairs on femur and tibia.

Wing measurements. Holotype male, primaries: base to apex, 31 mm; apex to outer angle, 21 mm; outer angle to base, 21 mm; secondaries: base to end of vein 3, 18 mm; center of costa to anal angle, 22 mm. Wing spread: 58 mm.

FEMALE: Unknown.

HOLOTYPE male: Presidio, Veracruz, Mexico, August, 1951. This specimen was obtained from Dr. Tarsicio Escalante, and will be placed in the U. S. National Museum, Washington, D. C.

I take pleasure in naming this new species for my wife, Louise, who has collected many fine specimens of *Astraptēs*.

This species is a member of the *parisi* complex of *Astraptēs*. Included are *parisi* Williams from South America, and *helen* Evans from Mexico, Honduras, Nicaragua, and Panama. Evans considered *helen* to be a subspecies of *parisi*; however, I believe the genitalia are sufficiently distinct to consider the two as distinct species. Superficially *louiseae* can be distinguished from *helen*, which occurs in the same general area of Mexico (Paraje Nuevo, Veracruz), by the shape and disposition of three spots on the primaries. In *louiseae* the spot over the cell is elongated and almost the same length as the width of the cell spot, while in *helen* this spot is smaller and is about one-fourth the width of the cell spot. In *louiseae* the spot in space 3 is broadly triangular almost reaching the cell spot, while in *helen* this spot is a mere dot over the outer tip of the spot in space 2. In *louiseae* the spot in space 1b is linear, and is situated away from the spot in space 2, while in *helen* this spot is broadly triangular and comes almost to the lower outer edge of the spot in space 2.

The genitalia readily separate the three species. In *parisi* the elongated process on the valva is dentated on its outer surface and not as tall as in *louiseae* while in *louiseae* the process extends well above the top of the valva, and the outer, lower tip of the valva is evenly

rounded and not dentate. In *helen* there is a prominent tooth extending forward from the base of the elongated process, and the lower tip of the valva is bluntly rounded. The elongated process of *helen* is about the same height as that of *louiseae*.

Astrartes gilberti Freeman, new species

(Plate 3, figure 1,2,3,4. Plate 4, figure 1)

MALE. Upperside: Primaries, dull black, basal one-third heavily overscaled with brilliant, shiny blue scales; a few green scales in spaces 1 and 2 intermixed with the blue. Outer margin more or less straight. No costal fold. Fringes black. Secondaries, dull black, basal one-third heavily overscaled with brilliant, shiny blue scales. Outer margin slightly convex. Fringes black, with a few yellowish scales intermixed.

Underside: Primaries, brownish black, with black areas near apex, near end of cell, and over basal one-third of wing. A sordid white tornal area extending broadly over spaces 1 and 2, becoming much narrower in space 2 where it terminates beneath the cell; costa light yellow from base to end of cell; a few yellowish white scales below costa from end of cell to apex. Secondaries, brownish black, with some scattered yellowish scales. Two black bands, one in discal area, one over central portion, both more or less straight. A sordid white area from base to mid costa, with a few black scales at center of this area at base of wing.

Wing measurements. Holotype male, Primaries: base to apex, 23 mm; apex to outer angle, 16 mm; outer angle to base, 15 mm. Secondaries: base to end of vein 3, 15 mm; center of costa to anal angle, 19 mm. Wing spread: 43 mm (average of paratypes, 43 mm).

Thorax: Upperside black, with heavy overscaling of bluish-green scales; beneath, dull, yellow. Abdomen: upperside black, heavily overscaled with bluish-green scales; beneath, brownish-black. Head: black, with a few dull green and yellowish scales. Palpi: sordid yellowish-white. Antennae: shaft, black above and below; club, black above including apiculus; beneath, lower half dull yellow, remainder of club black, except apiculus dull yellowish. Legs: prothoracic legs, yellowish, meso- and metathoracic legs, black.

FEMALE. Upperside: Primaries, dull, black, basal one-third heavily overscaled with brilliant, shiny blue, intermixed with shiny green scales. A slightly lighter area in space 2 below outer edge of cell, due to lack of black scaling. Fringes uniform black. Secondaries, dull, black, heavily overscaled with brilliant, shiny blue over basal one-third. Outer margin evenly rounded. Fringes black.

Underside: Primaries, brownish-black, with a black area near apex, another near outer edge of cell and basal one-third of wing.

An extensive tornal white area extending broadly over space 1, becoming narrower in space 2, terminating at upper edge of cell; base of costa yellowish, becoming sordid white above outer edge of cell; some sordid white scales between end of cell and apex. Secondaries, brownish-black, two dark brownish-black, nearly straight bands, one in discal area, the other in central portion of wing; costa yellowish-white from base to near middle.

Wing measurements. Allotype female, primaries: base to apex, 26 mm; apex to outer angle, 18 mm; outer angle to base, 17.5 mm. Secondaries: base to end of vein 3, 18 mm; center of costa to anal angle, 19 mm. Wing spread: 48 mm (average of paratypes, 47.5 mm).

Thorax: Upperside black, with heavy overscaling of bluish-green; beneath, dull, yellow. Abdomen: upperside black, heavily overscaled with bluish-green; beneath, brown. Head: black, with a few dull green and yellowish scales. Palpi: sordid, yellowish-white. Antennae: shaft, black above and below; club, black above including apiculus; below, lower half dull yellow, remainder black, except apiculus, dull yellowish. Legs: prothoracic legs, yellowish, meso- and metathoracic legs, black.

HOLOTYPE male: Seven miles south of Valles, (Grounds of Hotel Covadonga) San Luis Potosi, Mexico, August 1, 1966, collected by H. A. Freeman. This specimen will be placed in the U. S. National Museum, Washington, D. C. Allotype female, same location and collector, June 10, 1966. There are five male paratypes; one collected by H. A. Freeman at Victoria, Tamaulipas, Mexico, June 8, 1966; three collected at the type locality by the same collector, (one June 11, 1966, one July 28, 1966, and one August 4, 1966); and one collected by Stallings & Turner and El Salto, San Luis Potosi, Mexico, August 21, 1966. There are six female paratypes; one collected at El Salto, San Luis Potosi, Mexico, July 17, 1963; four collected at the type locality, (one July 30, 1966, one July 31, 1966, one August 3, 1966, and one August 7, 1966); and one from Pharr, Hidalgo County Texas, October 21, 1944. All female paratypes were collected by H. A. Freeman. The allotype and paratypes will remain in my collection.

I take much pleasure in naming this new species for my son Gilbert who is very interested in the genus *Astraptus*.

This new species belongs to the *alector* complex of *Astraptus*, which contains *alector* (Felder) and *hopfferi* (Ploetz). *A. gilberti* differs from these two in the following ways: (1) somewhat smaller size, the primaries of males of *gilberti* average 23 mm, whereas the other two species average 25 mm; (2) *gilberti* has the wing bases blue like *alector* but lacks the opaque white central band from the cell to space 2 in the males and to space 1b in the females of *alector*; the females of *gilberti* have only the

slightest indication of this whitish area in some specimens somewhat like *hopfferi*, but in the latter the wing bases are green; (3) *gilberti* has the costa on the underside of the primaries yellowish to the cell, while *alector* has this area orange turning to white near the cell, and *hopfferi* has this area shining green at the base turning to white at mid costa; (4) the tornal white area on the underside of the primaries does not enter the cell in *gilberti* and *alector*, but does in *hopfferi*; and (5) in *gilberti* the genitalia are different from the other two species basically in three ways; first, the posterior process on the dorsal side of the valva is much broader than in the other two species; second, the anterior process is taller than in the other two; and third, the uncus is differently shaped on both the lateral and ventral surfaces from that of either *alector* or *hopfferi* (Plate 4, fig. 1).

Astraptus hopfferi has been recorded from several localities in Mexico, through Central America, and well into South America. *Astraptus alector* has so far been recorded only from Colombia.

I recorded *Astraptus hopfferi* (Ploetz) for the United States based on a female that I collected at Pharr, Texas, October 21, 1944 (Freeman, 1945). This specimen is now known to be *Astraptus gilberti* Freeman and therefore the name *hopfferi* should be removed from the United States list of HesperIIDae.

Genus POLYTHRIX Watson

There are several species in *Polythrix* which exhibit similar superficial characteristics and are perhaps best defined as sibling species. In order to be positive of their identification, an examination of the genitalia is necessary. While collecting in Mexico during the summer of 1966, I caught a number of such *Polythrix*, all of which were readily identified with the exception of one species. Since *asine* (Hewitson) is the most familiar species of *Polythrix* in Mexico, I at first thought that all of the *asine*-like specimens which I collected at Valles, S.L.P., were that species. After spreading the material it was possible to recognize the differences between *asine* and a previously undescribed species, the description of which follows.

Polythrix mexicanus Freeman, new species

(Plate 5, figures 1-4)

MALE. Upperside: Primaries light brown, slightly darker along

outer margin. A small squarish spot in space 3, barely overlapping outer edge of spot in space 2; spot in space 2 straight on its inner surface, concave on its outer surface, situated under outer half of cell spot; cell spot broader at bottom than at top; a small spot over center of cell spot in space 10; five apical spots, one in space 5 round and small, one in space 9 about the same size, one in space 6 elongated, 2 mm wide, one in space 7 smaller, 1 mm wide, and one in space 8 about .5 mm wide. All spots are hyaline, sordid yellowish-white. Two faint dark spots beneath the spot in space 2, a somewhat darker spot midway between these two spots and base. Costal fold well developed. Fringes slightly lighter than ground color, especially at apex and termen. Secondaries light brown, an irregular, macular discal and central band of indistinct brownish spots. Outer margin evenly curved from apex to origin of the elongated tail. Tail averaging 12-14 mm in length, its center concolorous light brown with rest of wings, its outer edges much darker, nearly black. Fringes from apex to origin of tail light, sordid, yellowish-white.

Underside: Primaries similar to upper surface except in space 1, a light tan area from termen to base. Secondaries similar to upper side with somewhat lighter area along discal band, especially in space 1. Entire tail slightly darker than above.

Length of primaries, 19-22 mm, average 21 mm. Wing measurements: holotype: primaries: base to apex, 21 mm; apex to outer angle, 15 mm; outer angle to base, 15 mm; secondaries: base to end of Cu_1 , 14 mm; center of costa to end of tail, 30 mm; wing spread: 36 mm (average of paratypes 36 mm).

Abdomen: light olive-brown, above and below. Thorax: dull olive-brown, above and below. Palpi: olive-brown above and below. Antennae: club and shaft same olive-brown color above and below. Legs: same color as rest of body.

FEMALE. Same as male, except: (1) spots in spaces 2, 3, and cell are somewhat larger; (2) fringes of secondaries more whitish; (3) tails solid brownish-black above. General shape of wings much like that of males.

Length of primaries, 21 mm. Wing measurements: allotype: primaries: base to apex, 21 mm; apex to outer angle, 15 mm; outer angle to base, 15 mm; secondaries: base to end of Cu_1 , 14 mm; center of costa to end of tail, 30 mm. Wing spread: 38 mm.

Abdomen, thorax, palpi, antennae, and legs, same as males.

HOLOTYPE male: Seven miles south Valles (grounds of Hotel Covadonga), San Luis Potosi, Mexico, August 2, 1966, collected by H. A. Freeman, will be deposited in the U. S. National Museum, Washington, D. C. Allotype female: Ajijic, Jalisco, Mexico, October 22, 1965, collected by Robert Wind, will remain in the collection of H. A. Freeman. There are eight male paratypes, all collected at the

same place as the holotype during July and August, 1966, by H. A. Freeman, also in the collection of H. A. Freeman.

This new species belongs to the *asine* complex of the genus *Polythrix*, which contains *asine* (Hewitson), *roma* Evans, *hirtius* (Butler), and *gyges* Evans. The last three species are South American, and although they show superficial resemblances to *mexicanus*, the genitalia readily separate them. *asine* occurs rather widely over Mexico, through Central America to northwestern Peru. During the past three summers I collected *asine* at Catemaco, Veracruz, Juchitan, Oaxaca, and at the type locality of *mexicanus* (Valles, San Luis Potosi). In comparing *asine* and *mexicanus* there are a number of ways that they differ superficially, (1) *asine* is darker brown than *mexicanus*; (2) the tails of the males of *asine* are shorter, (7-8 mm) than those of *mexicanus*; (3) *asine* has four apical spots, whereas *mexicanus* has five; (4) in *asine* the spot in space 2 is almost even on its inner side with the cell spot, while in *mexicanus* the spot in space 2 is shifted outward, with its inner edge under the center of the cell spot; and (5) in the females of *asine* there is a hyaline spot in space 1b below the spot in space 2, while in *mexicanus* there is no hyaline spot there in either sex. One of the most distinguishing characteristics of *mexicanus* is the fact that the males have the same general wing shape as the females of *asine*, with the outer margin of the secondaries evenly curved from the apex to the origin of the tail, while in *asine* the males have this same area nearly straight, causing the tail to be shorter.

The genitalia readily separate *mexicanus* from any other member of *Polythrix* due to the much shorter, blunt tip to the cuiller, and the sharp pointed style of the valva. *P. roma* has the valva with the pointed tips of the cuiller and the style approximate. *P. asine* has the valva with the tips of the cuiller and style wide apart and the same general height. *P. hirtius* has the style of the valva very short, and the cuiller slender and pointed. *P. gyges* has the style of the valva fairly short, and the cuiller long, broad, and blunt-ended. There are other differences in the genitalia that can be determined by figures 3,4 on plate 5.

Ridens crison (Godman & Salvin, 1893)

This beautiful species was described from a female specimen collected in Guatemala. Evans (1952) recorded *cachinnans* (Godman) as a subspecies of *crison*, and stated that there was only the female type of *crison* in the British Museum; and that there was a male *cachinnans* from

Costa Rica, one male and a female from Panama, as well as the type in the museum. In his figures of the genitalia of the American HesperIIDae (1952: plate 17), he shows the male genitalia of what he called *crison* which apparently was made from one of the males of *cachinnans*, since he considered them to be the same species. In material which I received from Dr. Escalante there were five males of *crison* collected at Santa Rosa, Comitán, Chiapas, Mexico, during May, 1965. I found that the genitalia of these specimens did not match the figure that Evans illustrates for *crison*. This indicates that true *crison* has not been figured, and the genitalia Evans attributes to *crison* actually came from *cachinnans*, which is not a subspecies of *crison* but a distinct species.

This record from Comitán, Chiapas is the first record of *crison* for Mexico.

Superficially the males of *crison* closely resemble the Godman and Salvin figure of the type female. The only differences noted are the somewhat smaller size of the spots in spaces 1b, 2, 3, 4 and 5, and the slightly deeper blue coloration of the discal band on the lower surface of the secondaries in the Godman and Salvin figure.

Urbanus albimargo (Mabille, 1875)

This species was described from Colombia and appears to have a rather wide range throughout the American tropics. Evans (1952) recorded *albimargo* from Guatemala, Honduras, Costa Rica, Panama, Colombia, Venezuela, and Ecuador. In specimens received from Dr. Escalante, there was a male collected at Catemaco, Veracruz, August, 1961, and a female from Santa Rosa, Comitán, Chiapas, August, 1965. While collecting on the grounds of Hotel Covadonga, seven miles south of Valles, San Luis Potosí, on June 11, 1966, I caught a fresh male specimen of *albimargo*. It was flying in company with individuals of *Urbanus doryssus* (Swainson) but later examination revealed it could readily be separated from them by the tail color and general wing shape, as well as the genitalia. This constitutes another new HesperIIDae record for Mexico.

Aethilla chiapa Freeman, new species

(Plate 3, figure 5,6. Plate 4, figure 5)

MALE. Upperside: Primaries, dark brownish-black. Outer margin straight. No costal fold. Fringes, orange-yellow. Secondaries, dark brownish-black. Outer margin convex. Fringes, orange-yellow, the orange coloration extending slightly onto wing just outside of anal angle.

Underside: Primaries, dark reddish-brown, slightly lighter from apex to outer angle. Space 1a lighter due to a few orange scales. Secondaries, dark brownish-black, with a broad orange-yellow marginal border, 5 mm wide at end of vein 1, extending from anal angle to just below vein 4.

Wing measurements. Holotype male. Primaries: base to apex, 28 mm; apex to outer angle, 20 mm; outer angle to base, 20 mm. Secondaries: base to end of vein 3, 20 mm; center of costa to anal angle, 21 mm. Spread expanse: 50.5 mm (average of paratypes, 50 mm).

Abdomen: dark brownish-black, both above and below. Thorax: dark brownish-black, both above and below. Head: dark brown. Palpi: dark brownish-black. Legs: black. Antennae: shaft, brownish-black, both above and below; club, brownish-black above, slightly yellowish beneath.

FEMALE. Upperside: Primaries, dark brownish-black, with a slight purplish sheen. A slightly lighter area at end of cell. Two somewhat lighter bands, one 3 mm in from outer margin, extending from space 1b to costa, this band 5 mm wide; second band slightly inward from first, 3 mm wide, extending from space 1b to costa. Outer margin slightly convex. Fringes, orange-yellow, narrow. Secondaries, dark brownish-black, with the same purplish sheen as on primaries. The two lighter bands in approximately the same position as on primaries. A slightly lighter bar at end of cell. Outer margin evenly convex. Fringes, bright orange-yellow.

Underside: Primaries, reddish brownish-black, with the slightest indication of the lighter bands of upperside. Somewhat lighter in space 1a. Secondaries, dark brownish-black, a broad sordid orange-yellow marginal border from anal angle to just below vein 4.

Wing measurements. Allotype female. Primaries: base to apex, 31 mm; apex to outer angle, 21 mm; outer angle to base, 21.5 mm. Secondaries: base to end of vein 3, 23 mm; center of costa to anal angle, 22 mm. Wing spread: 54 mm.

Abdomen: dark brownish-black both above and below. Thorax: dark brownish-black both above and below. Head: dark brown. Palpi: dark brownish-black. Legs: black. Antennae: shaft, brownish-black above and below; club, brownish-black above, slightly yellowish beneath.

HOLOTYPE male, Ocozingo, Chiapas, Mexico, August 1958. This specimen as well as the allotype and three of the male paratypes were received from Dr. Escalante. The holotype will be placed in the U. S. National Museum, Washington, D. C. Allotype female, Ocozingo, Chiapas, Mexico, July 1942. There are five male paratypes: three from Ocozingo, Chiapas, two July 1942, and one July 1948; and there are two from Volcan San Maria, Guatemala, no date, in the U. S. National Museum. There is a female

paratype in the U. S. National Museum from Chiapas, Mexico with no other data. The allotype and one male paratype will remain in my collection. Two male paratypes will be placed in the Escalante collection, Mexico, D. F.

This new species bears a slight resemblance to *Aethilla lavoehrea* Butler but can readily be separated from it by the following characteristics: (1) *chiapa* is darker, with the lighter bands much less distinct than in *lavoehrea*; (2) the secondaries of the males of *chiapa* have the outer margin evenly convex, whereas *lavoehrea* has this area straight from the anal angle nearly to the apex, thus giving *chiapa* a broader secondary; (3) the fringes of both wings of *chiapa* are orange-yellow, while those of *lavoehrea* are more yellowish; (4) the orange marginal border on the underside of the secondaries of *chiapa* is narrower than in *lavoehrea*, and it does not have the dark line extending into the upper part of this area which *lavoehrea* has; and (5) the genitalia are different from any other species of *Aethilla*, (figure 5, plate 4).

Mimia chiapaensis Freeman, new species

(Plate 6, figure 5,6. Plate 15, figure 2)

MALE. Upperside: Primaries, dark brown, with faint submarginal and discal bands. A faint, dark line in spaces 4 and 5 beneath apical spot in space 6. Apical spots in spaces 7 and 8 are in line, the one in space 6 displaced outward from the other two. A black spot in outer one-third of cell. A long, narrow costal fold. Fringes dark brown. Secondaries, dark brown, with a darker marginal border, a curved discal band, and a dark spot in the cell. Outer margin evenly round. Fringes dark brown.

Underside: Primaries, brown, basal half and outer margin to apex darker than discal area and space 1, this area a lighter reddish brown. The three hyaline white apical spots prominent. Secondaries, dark chocolate brown, with a darker discal and basal band.

Abdomen and Thorax: dark brown, both above and below. Head: dark brown. Palpi: brown. Legs: brown. Antennae: dark brown above and below, both shaft and club.

Wing measurements: Holotype male. Primaries: base to apex, 21 mm; apex to outer angle, 15 mm; outer angle to base, 15 mm. Secondaries: base to end of vein 3, 16 mm; center of costa to anal angle, 16 mm. Wing spread: 34 mm.

FEMALE: unknown.

HOLOTYPE male, Santa Rosa, Comitán, Chiapas, Mexico, May 1965. This specimen was obtained from Dr. Tarsicio Escalante and will be placed in the U. S. National Museum, Washington, D. C.

Evans (1953) proposed the genus *Mimia* to accommodate one species, *phidyle* (Godman & Salvin), and he described *pazana* as a new subspecies of that species from Bolivia. The only specimen of *phidyle* in the British Museum is the female type from Panama. From the available information it appears to be they are actually separate species and I am going to treat them as such.

In separating *chiapaensis* from the other two species the following characteristics will suffice: (1) *chiapaensis* differs from *phidyle* in that the primaries on the lower surface do not have the apical half unmarked yellow as is present in *phidyle*. (2) *chiapaensis* differs from *pazana* in three basic ways, (a) the shape of the apical spots in *pazana*, as the ones in spaces 7 and 8 are minute, and the one in space 6 unusually large, while in *chiapaensis* they are equal in size with the one in space 6 displaced outward from the other two, (b) *pazana* has the outer half of the primaries on the lower surface pale yellowish-brown, while in *chiapaensis* this area differs, being only slightly lighter brown than the rest of the wing, and (c) differences in the genitalia, refer to Evans' (1953) figure of "*phidyle*," which must be *pazana*.

Windia Freeman, new genus

Type of the genus. - *Windia windi* Freeman

Antenna approximately one half the length of the costa, bent to apiculus beyond thickest part of the club. Nudum 3/12. Apiculus approximately one-third the length of club. Shaft and club brown above, yellowish beneath. Head, brownish-gray above. Palpi elongated, extending well beyond head, brown above, sordid white beneath. Mid tibia smooth, with one pair of spurs. Hind tibia smooth, with two pairs of spurs. Short, sparse, white hair-like fringe on both mid and hind tibiae. Primaries produced, apex more or less pointed, more or less straight from outer angle to apex. A very slender costal fold. Hyaline apical and discal spots present. Wing venation of both primaries and secondaries as in *Noctuana* Bell. Secondaries with the outer margin more or less concave, anal angle slightly produced. With semi-hyaline discal and basal spots. Genitalia with valvae asymmetrical.

This genus is proposed for a new species collected by Robert Wind, and I take great pleasure in naming it for him. Superficially the general color and maculation somewhat resemble members of the genus *Udranomia* Butler; structurally there is no similarity. *Udranomia* is in the *Augiades* Group of Group B of the Pyrginae, following Evans's arrangement, which is characterized by the peculiar

palpi: third segment stout, spatulate, set on the outer edge of the second segment, divergent. *Windia* is in the *Telemiades* Group of Group E of the Pyrginae, which is characterized by having the third segment of the palpi always porrect (extended forward) and pendulous (drooping). *Windia* is more closely related structurally to the genus *Noctuana* Bell than to any other, however the following differences separate the two genera: (1) *Windia* does not have the truncate primaries that are present in *Noctuana*; (2) members of the genus *Noctuana* have no hyaline spots on the primaries other than the apical spots and these are directed toward the upper half of the outer margin, while *Windia* has not only the hyaline apical spots which are toward the lower half of the outer margin but also hyaline spots in spaces 2, 3, 4, and two in the cell; (3) *Windia* has semi-hyaline discal and basal spots on the secondaries, approaching *Udranomia*, which are absent in *Noctuana*; (4) in *Noctuana* the hind tibia of the males have a long fringe, while in *Windia* this is short and rather sparse; and (5) there are basic genitalic differences in the general shape of the valvae and the aedeagus (see Evans, 1953, plate 34).

Windia windi Freeman, new species

(Plate 6, figure 7,8. Plate 15, figure 6)

MALE. Upperside: Primaries, grayish-brown, mottled dark and light. Outer margin alternately light and dark brown from outer angle to apex. Three dark bands in space 1; squarish, apical spots in a straight line in spaces 6, 7, and 8 directed toward lower half of outer margin. A minute dot in space 9 situated inward from the apical spot in space 8; two spots in space 2 situated beneath lower cell spot; a small spot in space 3, and a minute dot in space 4, directly beneath apical spot in space 6; somewhat triangular cell spots, the largest spots on the wing; all spots white hyaline. A dark area just inside apical spots, another inside cell spots and inner spot in space 2. A narrow costal fold. Wings produced apically, outer margin straight from outer angle to apex, which is more or less pointed. Fringes checkered dark and light brown. Secondaries, mottled dark and light grayish-brown, with some discal, basal and subcostal spots semi-hyaline. A black bar in cell, as well as dark discal and submarginal spots. Outer margin slightly concave, anal angle somewhat produced. Fringes checkered light brown.

Underside: Primaries, light brown, with ochreous markings in submarginal area from outer angle to apex. A light area in space 1 below spots in space 2. All spots reappear, paler. Secondaries, light brown, all veins lighter than ground color. Opaque discal spots, two at end of cell, one in cell, one above cell. Minute ochreous markings in submarginal area from anal angle to vein 5.

Abdomen: dark grayish-brown above, lighter brown beneath.

Thorax: dark grayish-brown above, yellowish-brown beneath. Head: dark brown. Palpi: dark brown above, sordid white beneath. Legs: yellowish-brown. Antennae: shaft brown above, yellow beneath; club brown above, yellow beneath, apiculus yellowish-brown.

Wing measurements: Holotype male. Primaries: base to apex, 15 mm; apex to outer angle, 12 mm; outer angle to base, 11 mm. Secondaries: base to end of vein 3, 10 mm; center of costa to anal angle, 13 mm. Wing spread: 29 mm (one paratype 28 mm, and the other 30.5 mm).

FEMALE: unknown.

HOLOTYPE male, Salada, Colima, Mexico, 13 June 1967 (collected by Robert Wind) will be placed in the U. S. National Museum, Washington, D. C. One male paratype, same location and collector, 19 June 1967, and one male paratype, Milpillas, Guerrero, Mexico, 4 July 1956 (collected by Kent Wilson) are in my collection.

Superficially there is a slight resemblance between *windi* and *Udranomia orcinus* (Felder) in the mottled appearance and arrangement of the white hyaline spots on the primaries.

Staphylus veytius Freeman, new species
(Plate 7, Figure 7,8. Plate 15, Figure 5)

MALE. Upperside: Primaries, dark brown, with the slightest indication of a darker submarginal band. Two minute apical spots and a minute dot in space 2. Fringes concolorous with ground color. A costal fold present. Secondaries, dark brown, with only the slightest indication of darker bands. Termen slightly undulate. Fringes same color as wing.

Underside: Primaries, dark brown, slightly lighter than upper-side. Apical and discal spot in space 2 only slightly visible. Secondaries, uniform brown.

Abdomen and thorax: dark brown, both above and below.

Wing measurements: Holotype male. Primaries: base to apex, 11.5 mm; apex to outer angle, 7 mm; outer angle to base, 9 mm. Secondaries: base to end of vein 3, 9 mm; center of costa to anal angle, 8 mm. Wing spread: 22 mm (paratype 24 mm).

FEMALE. Upperside: Primaries, dark brown, with dark brown central, discal and submarginal bands. Two apical spots, a tiny dot in cell, a small spot in space 2. All spots white, hyaline. Fringes same color as wing ground color. Secondaries, dark brown, with darker bands in central and discal areas. Fringes same color as ground color of wing.

Abdomen, thorax, head, palpi, legs, and antennae same as in males.

Wing Measurements: Allotype female. Primaries: base to apex, 13 mm; apex to outer angle, 9 mm; outer angle to base, 11 mm. Secondaries: base to end of vein 3, 10 mm; center of costa to anal angle, 9 mm. Wing spread: 27.5 mm.

HOLOTYPE male, Cintalapa, Chiapas, Mexico, 17 August 1964, will be placed in the U. S. National Museum, Washington, D. C. Allotype female and one male paratype same data as holotype are in my collection. All three specimens collected by H. A. Freeman. Named for the Mexican historian, Don Mariano Veytia.

This is another member of the *mazans* complex. Evans lists four subspecies of *mazans*, *mazans* (Reakirt) from Veracruz; *hayhurstii* (Edwards) from central and eastern United States; *tierra* Evans from Guerrero, Jalisco, Sonora, and Nayarit; and *ascaphalus* (Staudinger) from southern Mexico to South America. Since the genitalia of all four are different and in some areas certain ones fly together, it seems most unlikely that we should consider them to be subspecies so I propose that we consider each to be a valid species. The new species *veytius* is closer related to *tierra* than any of the other members of this group. Superficially it resembles *tierra* in general appearance but is smaller. Structurally the genitalia differs from *tierra* in that there are three equal size long bristles on the dorsal side of the valva and five at the apex of the valva. *S. tierra* was described as having two bristles on the upperside of the cuiller and conspicuous vinculum brushes. These brushes are not as conspicuous in *veytius*. I have found that *tierra* often has three bristles on the upper side of the cuiller, however the third one is always much shorter than the other two.

I have found that in the State of Chiapas, *mazans*, *ascaphalus*, and *veytius* all fly together in various areas. While collecting at the Guatemala border, I found only *ascaphalus*. At Cintalapa *mazans*, *veytius*, and *ascaphalus* Near Comitán *mazans* and *ascaphalus* were found.

Staphylus zuritus Freeman, new species

(Plate 7, figure 5,6. Plate 15, figure 4)

MALE. Upperside: Primaries, dark brown, with two darker brown bands from costal to inner margin, one outside end of cell, from apical region to inner margin, where it becomes slightly narrower; second band extending from just below costa, through cell to inner margin, broad, extending nearly to base of wing. No apical or discal spots. No costal fold present. Fringes darker at base, remainder concolorous with ground color of wings. Secondaries, dark brown,

three dark bands, first narrow, submarginal, second discal, wide below costa becoming much narrower above anal angle, third band sub-basal, extending to base. Outer margin evenly round. Fringes same as on primaries.

Underside: Primaries, light brown, with a lighter submarginal band. A few yellow scales scattered over entire surface. Secondaries brown, with slightest indication of darker bands present. Some scattered yellow scales over entire surface.

Abdomen and thorax: dark brown above, lighter beneath. Head: brown. Palpi: white, with a few intermixed gray scales. Legs: yellowish. Antennae: shaft and club black above, yellowish beneath.

Wing measurements: Holotype male. Primaries: base to apex, 14.5 mm; apex to outer angle, 10 mm; outer angle to base, 13 mm. Secondaries: base to end of vein 3, 12 mm; center of costa to anal angle, 11 mm. Wing spread: 29 mm.

FEMALE. Upperside: Primaries, brown, similar to male except with two minute apical spots, and a greater contrast between dark bands and ground color. Fringes same as in male. Secondaries, brown similar to male, except more contrast between dark bands and ground color. Fringes same as in male.

Underside: Primaries, lighter than above, the apical spots prominent. No indication of darker bands. Secondaries, uniform pale brown, with no indication of darker bands.

Abdomen, thorax, head, palpi, legs, and antennae same as in the male.

Wing measurements: Allotype female. Primaries: base to apex, 15.5 mm; apex to outer angle, 10 mm; outer angle to base, 12 mm. Secondaries: base to end of vein 3, 13 mm; center of costa to anal angle, 11 mm. Wing spread: 29 mm. Paratype, wing spread: 27.5 mm.

HOLOTYPE male, Cintalapa, Chiapas, Mexico, 17 August 1964, will be placed in the U. S. National Museum, Washington, D. C. Allotype female, Oaxaca, Oaxaca, 23 June 1966, and one female paratype same location, 22 June 1966 are in the collection of H. A. Freeman. All specimens collected by H. A. Freeman.

This new species is named for Zurita the Mexican historian.

Superficially *S. zuritus* resembles *S. semitincta* (Dyar) more closely than any other species. *S. zuritus* differs by being a darker brown, by not having any white hyaline spots, by not having whitish scaling on the lower surface of the secondaries, by having the under surface of the secondaries uniform brown instead of the posterior

half tinged gray. The best way to separate the two species is by the genitalia. The scaphium of the male genitalia is missing in *zuritus* while present in *semitincta*. In *semitincta* the valva terminates in a broad apex extending well above the rest of the valva, back of which the dorsal edge is produced inwardly into a somewhat triangular flange with two teeth at the apex. In *zuritus* the valva terminates in a lobed apex which barely extends above the rest of the valva, back of which the dorsal edge is produced inwardly into a somewhat triangular flange with one tooth at the apex. In preparing this description, *zuritus* was compared with specimens of *semitincta*, in my collection, from Villa Juarez, Puebla; Ajijic, Jalisco (collected by Robert Wind); and San Jose Purua, Michoacan (collected by Bryant Mather).

Quadrus francesius Freeman, new species
(Plate 7, figure 1-4. Plate 15, figure 3)

MALE. Upperside: Primaries, light brown, with a darker submarginal band and a broad central band extending from inner margin through cell to costa. Base darker brown. Three apical spots, the lowest one displaced outward from the other two; a discal spot in space 2, a linear, opaque spot below in space 1b, a smaller one in space 3 slightly outward from the spot in space 2; a small spot in upper part of cell, above this, just below costa is a minute, linear spot. All spots white hyaline. Cell black surrounding cell spot. Fringes concolorous with rest of wing. Secondaries, light brown, with darker submarginal, discal, and subbasal bands. A dark spot in cell. Fringes concolorous with rest of wing.

Underside: Primaries, brown, the darker bands plainly visible. All hyaline spots repeated, somewhat paler. Secondaries, brown, all dark bands repeated. A heavy suffusion of blue scales over all the wing except outer margin.

Abdomen: dark brown above, gray beneath, some blue scales at base. Thorax: dark brown above, lighter beneath, some sparse white hairs. Head: brown. Palpi: light brown, some white scales. Legs: brown. Antennae: shaft dark brown above, slightly lighter beneath; club dark brown above, slightly lighter beneath.

Wing measurements: Holotype male. Primaries: base to apex, 17 mm; apex to outer angle, 12 mm; outer angle to base, 13 mm. Secondaries: base to end of vein 3, 12 mm; center of costa to anal angle, 14 mm. Wing spread: 32 mm.

FEMALE. Upperside: Primaries, similar to male except darker. Secondaries, same as male except darker.

Underside: Primaries, similar to male except a paler area in space 1, and a small, yellowish submarginal spot in space 1b.

Secondaries, similar to male, except a pronounced dark bar in discal area of space 5. Blue overscaling of basal and discal areas extending along veins into submarginal area.

Abdomen, thorax, head, palpi, legs, and antennae same as male.

Wing measurements: Allotype female. Primaries: base to apex, 18 mm; apex to outer angle, 12 mm; outer angle to base, 14 mm. Secondaries: base to end of vein 3, 14 mm; center of costa to anal angle, 14 mm. Wing spread: 34 mm.

HOLOTYPE male, Santa Rosa, Comitan, Chiapas, Mexico, May 1965, will be placed in the U. S. National Museum, Washington, D. C. Allotype female, Comitan, Chiapas, September 1962, will remain in my collection. Both specimens were sent to me by Dr. Tarsicio Escalante.

I take pleasure in naming this new species for Sr. Alberto Diaz Frances, Mexico, D. F., who is an enthusiastic collector of Lepidoptera.

Superficially this new species slightly resembles *cerealis* (Cramer), however, it can readily be separated by the following characteristics: (1) the maculation of the primaries is greatly reduced in *francesius*, lacking the two spots below spot 2 which are present in *cerealis* and lacking the elongated lower cell spot; (2) the bluish white bands present in *cerealis* on the upper surface of the secondaries in both sexes are absent in *francesius*; (3) the lighter area on the under surface of the primaries in space 1 of *francesius* is not as pronounced in *cerealis*; and (4) the genitalia have a style on the valvae like *cerealis* but more closely approach the general shape of the genitalia of *fanda* Evans which lacks this style, and there are other differences as can be determined by my figure of the genitalia of *francesius* (Plate 15, fig. 3).

HESPERIINAE

Enosis matheri Freeman, new species

(Plate 7, figure 9, 10. Plate 15, figure 7)

MALE. Upperside: Primaries, dark brown, unmarked. Stigma dark brown. Fringes, tan. Secondaries, dark brown, unmarked. Fringes, tan.

Underside: Primaries, dark reddish brown. A distinct, yellowish-white apical spot in space 6. Apex with a slight ferruginous overscaling; space 1 slightly paler than remainder of wing. Secondaries, dark chocolate brown, with an indistinct, yellowish-white discal spot in space 3.

Abdomen and thorax: dark brown, both above and below. Head: dark brown. Palpi: dark brown. Legs: dark brown, with some yellow scales. Antennae: shaft, dark brown above and below; club, slightly yellowish at base and underside of apiculus, slightly yellowish, remainder dark brown.

Wing measurements: Holotype male. Primaries: base to apex, 19 mm; apex to outer angle, 12 mm; outer angle to base, 13 mm. Secondaries: base to end of vein 3, 13.5 mm; center of costa to anal angle, 13.5 mm. Wing spread: 36 mm.

FEMALE. Upperside: Primaries, dark brown, with an indistinct, yellowish-white apical spot in space 6. Fringes, sordid white. Secondaries, dark brown, unmarked. Fringes, sordid white.

Underside: Primaries, dark brown, except lighter in space 1. An indistinct, yellowish-white discal spot in space 3 and an apical spot of same color in space 6. Secondaries, dark chocolate brown, with a yellowish-white discal spot in space 3.

Abdomen, thorax, head, palpi, legs, and antennae, same as in male.

Wing measurements: Allotype female. Primaries: base to apex, 19 mm; apex to outer angle, 14 mm; outer angle to base, 15 mm. Secondaries: base to end of vein 3, 14 mm; center of costa to anal angle, 13 mm (wing torn at anal angle). Wing spread: 35 mm.

HOLOTYPE male, Catemaco, Veracruz, Mexico, December 1963 (obtained from Dr. Tarsicio Escalante, Mexico, D.F.), will be placed in the U. S. National Museum, Washington, D. C. Allotype female, Tuxpango, Veracruz, Mexico, 4 December 1957 (collected by Bryant Mather), will remain in my collection.

I take pleasure in naming this new species for Bryant Mather, Jackson, Mississippi.

This is another member of a genus of obscurely marked species that can only be definitely identified by an examination of the genitalia. The new species resembles *immaculata* (Hewitson) in the depth of coloration, especially on the underside, and has the stigma less conspicuous due to its dark brown color. The genitalia are different from any of the other species of *Enosis* as can be determined by comparing my figure (plate 15, fig. 7) with Evans' (1955) illustrations (plate 68, K. 4., 1-11).

Dalla ramirezi Freeman, new species

(Plate 8, figure 1, 2. Plate 4, figure 2)

MALE. Upperside: Primaries, brown. A light yellow, rectangular

hyaline spot in space 2, 3 mm wide, which is completely overlapped by the longer cell spot; the light yellow hyaline cell spot bluntly triangular, is 2 mm wide in the center; three yellowish hyaline apical spots in a line. Fringes same brown as wings. Secondaries, brown, a large oval spot in center of wing, covering most of cell; this spot 4.5 mm wide, 2.5 mm tall, with the inner half orange-yellow, the outer half semi-hyaline, nearly clear. Fringes, yellowish-tan, with some brown scales intermixed.

Underside: Primaries, brownish-black, with the hyaline spots somewhat lighter than above; four yellowish spots between apical spots and outer margin and apex. Base of costa yellowish. Ground color slightly lighter in space 1. Secondaries, brownish-black, with some yellow scales along costa, on the anal fold, and just outside anal angle; a broad, yellowish, strip extending from base through cell to just inside outer margin, with the semi-hyaline spot two-thirds from base.

Wing measurements. Holotype male, primaries: base to apex, 16.5 mm; apex to outer angle, 11 mm; outer angle to base, 13 mm. Secondaries: base to end of vein 3, 13 mm; center of costa to anal angle, 11 mm. Wing spread: 34 mm.

Abdomen: brownish-black above, yellow beneath. Thorax: brownish-black above, yellowish beneath. Head: brown, with some yellow scales. Palpi: elongate, yellowish-white with outer edges and tips black. Legs: yellow and black. Antennae: shaft, black above, yellowish beneath; (club missing from this specimen).

FEMALE. Unknown.

HOLOTYPE male, Catemaco, Veracruz, Mexico, August 1958, collected by Abraham Ramirez. This specimen was obtained from Dr. Escalante and will be placed in the U. S. National Museum, Washington, D. C.

I am unable to locate any species of *Dalla* that shows any close macular resemblance to this new species. The genitalia are not like any of the other species in this genus, as shown by figure 2 on plate 4.

Vettius argentus Freeman, new species

(Plate 8, figure 3, 4. Plate 4, figure 3)

MALE. Upperside: Primaries, light olive brown, with ochreous scales along costa from base to middle. An oval white spot in space 2, a smaller white spot beyond, in space 3. No costal fold. No apical spots. Fringes, same olive brown as wings. Secondaries, even olive brown. Fringes, same color as rest of wing.

Underside: Primaries, brownish-black, outer margin, apex, and

costa ferruginous. The two spots of upperside reappear, slightly paler. A broad silver spot in space 4, a somewhat smaller silver spot in space 6; a tiny silver spot in space 7. Secondaries, shiny silver, three ferruginous stripes: first along costa from base to end of vein 7; second from base through cell to outer margin; third from base of mid space 1c to outer margin just beneath end of vein 2. Outer margin narrowly edged with ferruginous scales.

Wing measurements. Holotype male, primaries: base to apex, 17.5 mm; apex to outer angle, 10.5 mm; outer angle to base, 14 mm. Secondaries: base to end of vein 3, 12.5 mm; center of costa to anal angle, 13 mm. Wing spread: 34.5 mm (average of paratypes, 31 mm).

Abdomen: brownish-black above, white beneath. Thorax: brownish-black above, white beneath. Head: brownish-black. Palpi: intermixed white and black. Legs: whitish. Antennae: shaft, brownish-black above and below, except at base of club, somewhat lighter; club, brownish-black above and below, somewhat lighter at base.

FEMALE. Upperside: Primaries as in male. Secondaries as in male, except broader.

Underside: Primaries as in male, except for silver spots in apical region somewhat duller. Secondaries as in male.

Wing measurements. Allotype female, primaries: base to apex, 18 mm; apex to outer angle 11 mm; outer angle to base, 14 mm. Secondaries: base to end of vein 3, 14 mm; center of costa to anal angle, 13.5 mm. Wing spread: 35 mm.

Abdomen, thorax, head, palpi, legs, and antennae as in male.

HOLOTYPE male, Santa Rosa, Comitán, Chiapas, Mexico, May 1965, will be placed in the U. S. National Museum, Washington, D. C. Allotype and two male paratypes, same date and location. These specimens were sent to me by Dr. Escalante; paratypes will be placed in his collection and the allotype will remain in my collection.

This new species is related to *Vettius coryna* (Hewitson) and its subspecies *conka* Evans and *catargyra* (Felder) by the silvery lower surface of the secondaries and the three ferruginous bands. *V. argentus* differs in having no apical spots, while *conka* has one, and *catargyra* and *coryna* have two. There is a cell spot in *coryna* which is not present in either *argentus* or *conka*. In *coryna* and its subspecies the costal edge of the last, and anal edge of the middle, ferruginous streaks on the lower surface of the secondaries are black edged, while this does not occur in *argentus*. The genitalia differ in that the terminal end of the valva is more upturned and the shape of the uncus is different (Plate 4, fig. 3).

Niconiades comitana Freeman, new species
(Plate 8, figure 5, 6. Plate 4, figure 4)

MALE. Upperside: Primaries, dark brownish-black, a few green scales near base and in space 1a. A squarish white hyaline spot in space 2; an oval rather small, yellowish spot in space 1b, basad from the spot in space 2; another square, white, hyaline spot in space 3, situated outward from space 2; two white, hyaline spots in cell which barely touch in the center; three white, hyaline apical spots, one nearest costa a mere dot. Three brands, brown, rather inconspicuous, a very small one over middle of vein 1; second one somewhat elongated, below vein 2 near its origin; third one shorter, above vein 2 directly over the elongated one. Fringes, dark brown becoming somewhat lighter near outer angle. Secondaries, dark brownish-black, some green scales near base. Two white hyaline spots, one in space 3, 1.5 mm wide, one in space 2, 1 mm wide. Outer margin convex, only slightly produced at anal angle. Fringes, sordid yellowish-white.

Underside: Primaries, dark brown, a heavy suffusion of yellow at costa above cell, becoming indistinct toward base. Vein 1 white edged, vein 2 slightly edged in yellow. The white hyaline spots of upperside all reappear, somewhat paler; a small yellowish area in space 1b just beneath outer edge of spot in space 2; a clear white, oval spot inward from this, directly over vein 1. Apex is slightly lighter brown than remainder of wing. Secondaries, dark brown, a wide band from edge of costa to space 1c, bright yellow from costa to spots in spaces 2 and 3, from there downward, yellowish-white. A yellow streak along vein 1a extending 7 mm. from base.

Wing measurements. Holotype male, primaries: base to apex, 17.5 mm; apex to outer angle, 12 mm; outer angle to base, 13 mm. Secondaries: base to end of vein 3, 12 mm; center of costa to anal angle, 14 mm. Wing spread: 33 mm.

Abdomen: brownish-black above, base heavily overscaled with green, below brownish-black. Thorax: brownish-black above heavily overscaled with green, underside brown. Head: black, with green scales. Palpi: yellowish-white. Legs: brown, with some yellow. Antennae: shaft, black above, slightly ringed beneath; club, black above, below basal half slightly yellowish, remainder black.

FEMALE. Upperside: Primaries, dark brown, a few green scales near base. Spots same as in males except cell spots fused, the rest somewhat larger. Secondaries, dark brown, green scales over basal one-fourth of wing. A tiny, white, hyaline dot in space.

Underside: Primaries, same as male except the yellow costal area broader and wider. Secondaries, like male except yellow stripe a little wider, not as dark, more yellowish-white.

Wing measurements: Allotype female, Primaries: base to apex, 19 mm; apex to outer angle, 12 mm; outer angle to base, 15 mm.

Secondaries: base to end of vein 3, 13 mm; center of costa to anal angle, 14 mm. Wing spread: 33 mm.

Abdomen, thorax, head, palpi, legs, and antennae same as in male.

HOLOTYPE male, Comitán, Chiapas, Mexico, July 1964, will be placed in the U. S. National Museum, Washington, D. C. Allotype female, Catemaco, Veracruz, Mexico, March 1961, is in my collection. These two specimens were sent to me by Dr. Tarsicio Escalante.

The nearest related species is *Niconiades xanthaphes* Hübner, from which *comitana* can readily be separated by the following characteristics: (1) the outer margin of the secondaries of *comitana* is convex and only slightly produced at the anal angle, while the outer margin of the secondaries of *xanthaphes* is concave and the anal angle is much more produced; (2) the iridescence is more extensive over the basal part of the wings of *xanthaphes* than in *comitana*; (3) the costa on the lower surface of the primaries is yellow from the base to the cell spot in *xanthaphes*, while this yellowish area in *comitana* is broader apically and does not extend to the base of the wings; (4) on the lower surface of the secondaries the stripe is white in *xanthaphes* and rather narrow and originates below the costa, while in *comitana* this stripe originates on the costa and is yellow and broader; and (5) there are differences in the genitalia as can be noted by comparing the figure of *comitana* (Plate 4, fig. 4) with Evans' illustration of *xanthaphes* (1955, Plate 85).

Anthoptus macalpinei Freeman, new species
(Plate 9, figure 1, 2. Plate 10, figure 1)

MALE. Upperside: Primaries, dark brownish-black, costa deep fulvous from base to outer edge of cell. Veins fulvous from end of cell to termen below costa; three fulvous apical spots, the lowest a mere dot; a bright fulvous discal band divided into spots by the veins, tapering from basal half of inner margin to just under vein 5, directly beneath the apical spots. No cell spot. Fringes brownish-black, slightly fulvous at outer angle. Secondaries, dark brownish-black. A discal band of four elongate, bright fulvous spots, forming an oblique patch approximately 3 mm wide. Some elongated, slightly fulvous, hair-like scales covering basal half of wing. Fringes concolorous with rest of wing, except at anal angle, fulvous.

Underside: Primaries, base cell and lower half deep black, outer margin, apex, costa and area occupied by discal spots from space 2 upward, bright yellow. A black line at end of cell. Secondaries, bright yellow, slightly darker along outer margin. An indistinct dot in cell. Anal fold slightly overscaled with sparse black.

Abdomen: brownish-black above with some fulvous hairs, bright yellow below. Thorax: dark brownish-black above with some fulvous hairs, below bright yellow. Head: black, with a large number of yellow hairs. Palpi: bright yellow with a few black scales intermixed. Legs: sordid yellow. Antennae: shaft, black above, yellow beneath; club, base yellowish, remainder and apiculus black above and beneath.

Wing measurements. Holotype male, primaries: base to apex, 16 mm; apex to outer angle, 10.5 mm; outer angle to base, 12 mm. Secondaries: base to end of vein 3, 11 mm; center of costa to anal angle, 12 mm. Wing spread: 31 mm. (Paratype male, same measurements).

FEMALE: unknown.

HOLOTYPE male, Fortin de las Flores, Veracruz, Mexico. 26 September 1966, will be placed in the U. S. National Museum, Washington, D. C. There is a male paratype collected at the same location and date in my collection. Both specimens were collected by W. S. McAlpine and it gives me great pleasure to name this species after him.

This new species is in the *calcarea* complex, which is composed of *calcarea* (Schaus), *maracanae* (Bell), and *visendus* Bell. It can be distinguished from other members of the complex by the following characteristics: (1) from *calcarea* by the brighter yellow on the under side of the wings, by the better developed discal bands on both wings, and in not having the borders below shaded brown; (2) from *maracanae* by the discal band on the under surface of the primaries not extending into space 1, by the brighter yellow on the under surface of the secondaries, and by not having the discal bands on both wings as broad and (3) from *visendus* by the brighter yellow under surface, which in *visendus* is pale rufous brown with the veins yellow, by the discal band on the primaries terminating directly beneath the apical spots while in *visendus* the apical spots are situated inward from the discal band, by not having a dark spot at the tornus with a yellow streak above it like is found in *visendus*, and by the discal band which is better developed in *macalpinei* than it is in *visendus*. The genitalia are different from any other species of *Anthoptus* (plate 10, fig. 1).

Pheraeus covadonga Freeman, new species

(Plate 9, figures 3, 4, 5, 6. Plate 10, figure 2)

MALE. Upperside: Primaries, black. Three yellow apical spots; costa yellow from base to apical spots; a bright yellow discal band, divided into spots by the veins, tapering from basal half of inner margin to apical spots; spots in spaces 2 and 3 semi-hyaline,

fairly broad, the one in space 2, 2.5 mm wide, the one in space 3, 2 mm wide. An indistinct sagittate dark band over the origin of vein 3. No cell spot. Fringes bright yellow. Secondaries, black, with a heavy suffusion of yellowish scales over anal fold to base. A bright yellow, discal spot extending from near outer margin, through the cell to near base, not divided into spots by the veins. Fringes bright yellow.

Underside: Primaries, dorsal half black, the remainder from vein 3 to costa ochreous. A slight ochreous suffusion under the spot in space 2. Five indistinct marginal spots extending from space 3 to costa near apex. Apical spots appear as black dashes, the one in space 6 having a tiny yellow center. A black bar at end of cell, a slightly lighter yellow spot just beyond. Spots in spaces 2 and 3 semi-hyaline, much lighter than the ochreous color of the costal half of wing. Secondaries, bright ochreous, anal fold heavily overscaled with black. An irregular row of five discal spots extending from space 1c to 6; the one in space 1c a tiny black dot situated one-third the distance to base; the one in space 2 a black circle with a yellow center, located closer to outer margin, only about one-fourth the distance inward toward base; the one in space 3 a black circle with a tiny yellow center situated slightly outward from the spot in space 2; the one in space 5 a black dot, located about one-fourth of the distance toward base; the one in space 6 a black oval, with the center yellow, located one-third the distance toward the base; a prominent black oval cell spot located inward from discal spots, with the outer one-half pupilled with yellow.

Abdomen and Thorax: black, upperside with a heavy suffusion of yellowish hairs, yellow beneath. Head: black, with a heavy suffusion of yellowish scales. Palpi: bright yellow, with a few black scales. Legs: yellow. Antennae: shaft, black ringed with yellow both above and below; club, basal half yellow, both above and below, apical half black with the apiculus yellow.

Wing measurements. Holotype male, primaries: base to apex, 13 mm; apex to outer angle, 9 mm; outer angle to base, 10 mm. Secondaries: base to end of vein 3, 9 mm; center of costa to anal angle, 10 mm. Wing spread: 26 mm (one male paratype 24 mm, the other 22.5 mm).

FEMALE. Upperside: Primaries, brownish-black. Three indistinct apical spots, one in space 6 largest, a mere yellow dot. Two semi-hyaline, tan spots in discal area; one in space 2 somewhat square, one in space 3 elongated, narrow; a slightly lighter, elongated, tan area in space 1b midway between outer margin and base. Fringes brownish-black. Secondaries, brownish-black, only slightly paler over discal area. Fringes brownish-black.

Underside: Primaries, brownish-black, a few ochreous scales along costa from base to apex where they extend two-thirds the distance down outer margin. Five indistinct marginal dots from space 3 to costa near apex. No indication of the apical spots of male except

a tiny dot in space 6. Secondaries, similar to male, ground color darker, tan instead of bright ochreous. Discal and cell spots same as in male.

Abdomen: brownish-black, upperside with a very few ochreous scales, beneath somewhat paler. Thorax: brownish-black, upperside with a few ochreous scales, underside slightly lighter. Head: brownish-black, with a very few ochreous scales. Palpi: sordid gray, with some black scales. Legs: brownish-yellow. Antennae: shaft, black above, slightly paler beneath; club, black above, beneath slightly paler at base, remainder of club and apiculus both above and below, black.

Wing measurements. Allotype female, primaries: base to apex, 12 mm; apex to outer angle, 8 mm; outer angle to base, 9 mm. Secondaries: base to end of vein 3, 9 mm; center of costa to anal angle, 8 mm. Wing spread: 25 mm.

HOLOTYPE male, seven miles south of Valles, (on the grounds of Hotel Covadonga) San Luis Potosi, Mexico, 10 June 1966, will be placed in the U. S. National Museum, Washington, D. C. Allotype female same location, 5 August 1966. There are two male paratypes from the same location, one collected 5 August 1966, and the other 6 August 1966. All four specimens were collected by H. A. Freeman. The allotype and paratypes will remain in my collection.

The males of this new species show a superficial resemblance to *Anthoptus epictetus* (Fabr.) on the upperside, but the two can be separated by the lighter color of the semi-hyaline spots in spaces 2 and 3 in *covadonga*, and the absence of a cell spot which is present in *epictetus*. On the lower surface there is no similarity in the two species. These species fly together in dense vegetation at the type locality of *covadonga*. *P. covadonga* belongs in the *fastus* complex along with *fastus* Hayward from Brazil and Paraguay, and *honta* Evans from Peru. *P. covadonga* can be separated from *fastus* by the following characteristics: (1) the discal spots are a clearer yellow in *covadonga* due to the tendency of these areas to be shaded darker on both the secondaries and primaries of *fastus*; (2) on the lower surface of the secondaries of *fastus* the ground color is greenish-ochreous, whereas in *covadonga* it is more yellowish-ochreous; and (3) in *covadonga* on the lower surface of the secondaries the discal spots and cell spot are black, in some cases with a yellow pupil, while in *fastus* these spots are white with the black edging faint or absent. *P. covadonga* can be separated from *honta* by the following characteristics: (1) in *honta* on the lower surface of the primaries there is a broad spot in space 1b which is absent in *covadonga*; (2) on the upper surface of the secondaries in *honta* the tawny discal spot extends to the base of the wing, while in *covadonga* it

does not reach the base; and (3) on the lower surface of the secondaries in *honta* the discal and cell spots are white, edge in black, while in *covadonga* the spots are black with some having a yellow pupil. The genitalia are different from any of the other species in this genus (Plate 10, fig. 2).

This is the first record for the genus *Pheraeus* in Mexico.

Cynea nigricola Freeman, new species

(Plate 9, figures 7, 8. Plate 10, figure 3)

MALE. Upperside: Primaries, dark brown, unmarked. An elongated band over vein 1, slightly covered by short hairs. A dark brown hair tuft originating on the dorsal margin of the wings. Fringes dark brown. Secondaries, dark brown. Secondaries, dark brown, with no markings. Fringes dark brown.

Underside: Primaries, dark brown, only slightly lighter than above. No markings present. Secondaries, dark chocolate brown. No markings present.

Abdomen: Dark brown both above and below. Thorax: dark brown above with some long, dark brown hairs, beneath dark brown. Head: dark brown with some dark green scales. No red behind collar. Palpi: dark brown with some golden yellow scales intermixed. Legs: dark brown with a few yellowish hairs. Antennae: shaft, dark brown both above and beneath; club, yellowish at base, remainder and apiculus dark brown above, entire club yellowish beneath.

Wing measurements. Holotype male, primaries: base to apex, 18 mm; apex to outer angle, 12 mm; outer angle to base, 14 mm. Secondaries: base to end of vein 3, 13 mm; center of costa to anal angle, 14 mm. Wing spread: 33 mm.

FEMALE: unknown.

HOLOTYPE male, Santa Rosa, Comitán, Chiapas, Mexico, May 1965, will be placed in the U. S. National Museum, Washington, D. C. This specimen was obtained from Dr. Tarsicio Escalante.

This new species belongs to the *corisana* complex of the genus *Cynea* which is a group of several superficially similar species which can be separated only by study of the male genitalia. The only member of this complex so far recorded from Mexico is *megalops* (Godman) which can be separated from *nigricola* by the following characteristics: (1) *megalops* has the dorsal margin on the under surface of the primaries paler than the rest of the ground color, while this does not occur in *nigricola*; (2) in *megalops*

there are sometimes indistinct spots on the underside of the primaries, one in space 2 and another in space 3, in the holotype of *nigricola* these are not present; (3) *megalops* has some reddish behind the collar which is absent in *nigricola*; (4) the brand over vein 1 is short and obscure in *megalops*, while in *nigricola* it is elongate and prominent; (5) the head scaling is green in *megalops*, while in *nigricola* it is more brownish with some green scales intermixed; and (6) the genitalia of *nigricola* is different from any other members of this genus (Plate 10, fig. 3).

Methionopsis typhon Godman, 1901

This species was described from Guatemala, and Evans (1955) states that there are four males from that country in the British Museum. This constitutes all the known records for *typhon*. While collecting in a remote area of jungle-like growth on the grounds of Hotel Covadonga, seven miles south of Valles, San Luis Potosi, on August 4, 1966, I caught a male of this species, the first record from Mexico.

Since *typhon* belongs to a group of skippers which are obscurely marked, the only positive way to check its identity is through an examination of the genitalia.

Moeris duena Evans, 1955

This is apparently another very rare species, as it was described from four specimens from Guatemala, and I know of no other records. The male type came from Duenas, Guatemala and is in the British Museum. In specimens received from Dr. Escalante were two males of this species collected at Santa Rosa, Comitán, Chiapas, May, 1965. This is the first record for *duena* in Mexico.

Genus CARYSTOIDES Godman

The genus *Carystoides* is made up of a large number of closely related species in the American tropics. There are two major complexes in this genus, the first is the *basoches* complex, made up of *basoches* (Latreille), *yenna* Evans, *nosedá* (Hewitson), *certima* (Hewitson), and *lota* (Hewitson). This complex is basically characterized by the males having the wings produced and the females having a white spot in space 1b of both upper and underside of the primaries. The second complex is the *lebbaeus* complex, which is made up of *lebbaeus* (Hewitson), *cundina* Evans, *benchos* Weeks, *manta* Evans, *balza* Evans, *lila* Evans,

and *hondura* Evans. This complex is basically characterized by the males having the wings rounded and not produced, and the absence of the spot in space 1b on the primaries in the females. There are four other names species in this genus, *sicania* (Hewitson), *orbis* (Godman), *maroma* (Möschler), and *cathaea* (Hewitson), that have individual characteristics and do not seem to fit into the two major complexes.

Records for the occurrence of members of this genus in Mexico are confined to *basoches* (Latreille) from Colima and southern Veracruz (Hoffman, 1941). Evans records no species from Mexico in the British Museum. I recorded *lila* Evans from Tamazunchale, San Luis Potosi, based on a female collected by Stallings and Turner (Freeman, 1967). Apparently one reason why so few records are available from Mexico is due to the habits of members of this genus. I observed in the Valles area that the adults feed early in the morning around the edge of the jungle and promptly retire into the most dense growth of plants available to settle during the remainder of the day. It is then only possible to locate the skippers by going into this dense vegetation and carefully beating the plants with your net and then watching where the specimens eventually settle, since they seldom fly very far from their original resting spot.

In specimens received for determination from Dr. Tarsicio Escalante, Mexico, D.F., and specimens that I collected during the summer of 1966 in Mexico four new species were found in the *lebbaeus* complex, the descriptions of which follow.

Carystoides escalantei Freeman, new species

(Plate 11, figure 1, 2. Plate 12, figure 1)

MALE. Upperside: Primaries, black, not produced, somewhat round, apex clear white, 1-2 mm wide; a tiny, white, hyaline dot in space 6; cell spot somewhat squarish, completely overlapping spot in space 3; spot in space 3 somewhat triangular, outer point directed toward center of outer margin; spot in space 2 fairly broad, 3 mm, extending from vein 1 to vein 2. All spots clear white, hyaline. Fringes, dark gray, only slightly lighter than ground color, not checkered. Secondaries, black, three white, hyaline spots in spaces 3, 4, and 5; the one in space 3 minute, round; the one in space 4 larger, 2 mm wide; the one in space 5 small, triangular, Fringes, sordid white, not checkered.

Underside: Primaries, grayish-black, lighter in space 1. Apex overscaled with grayish-ochreous; a concentration of ochreous scales between cell spot and costa; costa narrowly ochreous from base to

area over cell spot; the four hyaline spots reappear, the same color; two black spots forming a straight line above the hyaline dot in space 6, one in space 7, and the other in space 8; two black, linear spots, in line, one in space 4, and the other in space 5, forming a straight line directed toward apex. Secondaries, grayish-black, heavily overscaled over basal half from vein 2 to costa with ochreous; the white, hyaline spots reappear, black-edged; a black spot in space 2, slightly basad from the spot in space 3, another black spot in space 4, 2 mm from the hyaline spot in a basad position.

Thorax: brownish-black above, lighter beneath. Abdomen: brownish-black above, ochreous beneath. Head: brownish-black. Palpi: yellowish-white. Legs: ochreous, black at apical part of segments. Antennae: missing from this specimen.

Wing measurements. Holotype male, primaries: base to apex, 22 mm; apex to outer angle, 15 mm; outer angle to base, 15 mm. Secondaries: base to end of vein 3, 16 mm; center of costa to anal angle, 16 mm. Wing spread: 43 mm.

FEMALE: Unknown.

HOLOTYPE Male, Villa Juarez, Puebla, Mexico, August 1954. This specimen was sent by Dr. Escalante and will be placed in the U. S. National Museum, Washington, D. C. I take great pleasure in naming this new species for my good friend, Dr. Tarsicio Escalante.

This new species has the wings rounded somewhat in the same manner as *hondura* Evans, and also has the same white, hyaline spot in space 6 on the primaries. However, its larger size (forewing length 22 mm) as compared with *hondura* (14 mm) and the difference in the genitalia readily separate these two species. It differs from the next new species in the shape of the spot in space 3 on the primaries; the larger white spots on the secondaries; the more rounded wings; and the genitalia.

Carystoides abrahami Freeman, new species
(Plate 11, figure 3,4. Plate 12, figure 2)

MALE. Upperside: Primaries, black, not produced but slightly round, with apex clear white, 1-3 mm wide; three clear white, hyaline spots: cell spot taller, 2.5 mm, than wide, 1.5 mm, completely overlapping the somewhat rounded spot in space 3; spot in space 2 somewhat squarish, 2.5 mm wide. Fringes, dark gray, only slightly lighter than ground color. Secondaries, black, with three minute white, hyaline spots; the one in space 3 a tiny dot; the one in space 4 round, just under 1 mm wide; and the one in space 5 just visible as a tiny dot. Fringes, uniform sordid yellowish-white.

Underside: Primaries, black, paler in space 1. Apex overscaled with purplish-gray, a few intermixed ochreous scales; a light concentration of ochreous scales between cell spot and costa; costa narrowly edged with ochreous, almost to apex; three hyaline spots reappear in about the same coloration as above; a black spot in space 6; a black dot in space 4 and another directly above, in space 5. Secondaries, purplish-black, with ochreous overscaling from anal angle to costa over basal half of wing; a few ochreous scales intermixed with the purplish-black in outer half of wing; hyaline spots in spaces 3, 4, and 5 black edged; a black spot in space 2, slightly basad from spot in space 3, latter spot white pupiled; a black spot with a few ochreous scales in its center, in space 4, 2 mm basad from hyaline spot in this space.

Thorax: brownish-black above, slightly lighter beneath. Abdomen: brownish-black above, somewhat ochreous beneath. Head: brownish-black. Palpi: yellowish-white. Legs: ochreous and black. Antennae: missing from the unique specimen.

Wing measurements. Holotype male, primaries: base to apex, 21.5 mm; apex to outer angle, 14 mm; outer angle to base, 16 mm. Secondaries: base to end of vein 3, 16 mm; center of costa to anal angle, 15 mm. Wing spread: 44 mm.

FEMALE: unknown.

HOLOTYPE male, Catemaco, Veracruz, Mexico, July 1951. This specimen was sent to me by Dr. Escalante and was collected by Senor Abraham Ramirez. I take pleasure in naming this new species for the collector. This specimen will be placed in the U. S. National Museum, Washington, D. C.

This species is somewhat similar to *escalantei*, but can be separated by the less rounded wing shape, the shape of the spot in space 3 on the primaries, the much smaller size of the hyaline spots on the secondaries, and the genitalia.

Carystoides floresi Freeman, new species

(Plate 11, figures 5,6,7,8. Plate 12, figure 3)

MALE. Upperside: Primaries, black, not produced, white apex, 2.5 mm wide. Three clear white, hyaline spots; the spot in cell taller, 2 mm, than wide, 1.5 mm; the spot in space 3 somewhat ovate, situated beneath outer half of cell spot; spot in space 2 somewhat squarish, 2.5 mm wide. Fringes, uniform light tan. Secondaries, black, a single round, minute, white, hyaline spot in space 4. Fringes, sordid white.

Underside: Primaries, grayish-black, overscaled with olive-brown scales along costa and apex. Spots same color as above; a

black spot in space 4, another in space 5, located closer to outer margin than the one in space 4; a distinct black spot in space 6 directly over spot in space 4, an indistinct black dot in space 7 inward from the one in space 6. Secondaries, black, heavily overscaled with olive, except at the anal fold; a round, white, hyaline spot in space 4, edged in black. A black dot with a white pupil in space 3, directly below the spot in space 4; a black dot in space 5, slightly outward from spot in space 4.

Thorax: brownish-black above, lighter beneath. Abdomen: black above, slightly lighter beneath. Head: black above, sordid white next to eyes. Palpi: yellowish-white, with some intermixed black scales. Legs: black, with some yellow scales. Antennae: shaft black, ringed with white; club white above, yellowish beneath, with the apiculus black.

Wing measurements. Holotype male, primaries: base to apex, 22.5 mm; apex to outer angle, 14 mm; outer angle to base, 15 mm. Secondaries: base to end of vein 3, 16.5 mm; center of costa to anal angle, 15 mm. Wing spread: 43.5 mm.

FEMALE. Upperside: Primaries, black, with a slight purplish sheen. Three white, hyaline spots; cell spot broader at dorsal side than on costal side, 2.5 mm wide in center; spot in space 2 broad, 6 mm wide, broader at costal side than at dorsal side, situated directly beneath cell spot, their edges forming a straight line toward outer angle of wing; the spot in space 3 rounded, 1.5 mm wide, located outward from spot in space 2. Fringes, light, uniform gray. Secondaries, black, with a few scattered olive scales near base. A tiny white, hyaline spot in space 4. Fringes, yellowish-white.

Underside: Primaries, black, with space 1 lighter, brownish-black. Some lilaceous scales intermixed with brown in apical region and along costa. Spots same as above; an indistinct black spot in space 6; an indistinct black dot in space 4, outward from this another black dot in space 5. Secondaries, black, heavily overscaled with ochreous and brown scales over basal half of wing from anal angle to costa. Outer half of wing with a few ochreous scales, and a slight purplish sheen. A white, hyaline spot in space 4, edged in black; a black spot in space 3, slightly basad from spot in space 4; a black spot in space 5, slightly outward from spot in space 4. Two specimens with minute black dot at outer edge of cell.

Thorax: black, some brownish scales above, slightly lighter beneath. Abdomen: black above, lighter beneath. Head: brownish-black, whitish near eyes. Palpi: yellowish-white, some black scales intermixed. Legs: brownish-yellow. Antennae: shaft black, ringed with white; club, basal half white, upper half and apiculus black.

Wing measurements. Allotype female, primaries: base to apex, 24 mm; apex to outer angle, 15 mm; outer angle to base, 17 mm. Secondaries: base to end of vein 3, 18 mm; center of costa to anal angle, 16 mm. Wing spread: 49 mm (average of paratypes, 48 mm).

HOLOTYPE male, seven miles south of Valles, (jungle section of the grounds of Hotel Covadonga) San Luis Potosi, Mexico, August 4, 1966, collected by H. A. Freeman. This specimen will be placed in the U. S. National Museum, Washington, D. C. Allotype female, same location and collector, August 7, 1966. There are six female paratypes (same location and collector) collected from August 1-7, 1966. The allotype and paratypes are in my collection.

I take pleasure in naming this new species for my friend Senor Pedro Flores, former manager of the Hotel Covadonga, who so kindly gave me assistance in my collecting while I was there during the summer of 1966.

This species differs from any of the other *Carystoides* in this complex in having a single white, hyaline spot on the secondaries in both sexes. The genitalia differ from the other species (Plate 12, fig. 3).

Carystoides mexicana Freeman, new species
(Plate 11, figures 9,10,11. Plate 12, figure 4)

MALE. Upperside: Primaries, black, apex white, 2-3 mm wide. Three white, hyaline spots; cell spot straight on its outer margin, concave on its inner margin, 1.5 mm wide; spot in space 3 situated two-thirds the distance under outer margin of cell spot, 2 mm wide; spot in space 2 broader at dorsal side than at costal side, 3 mm wide. Fringes, light tan. Secondaries, black, with three white, hyaline spots and an opaque spot in space 2, basad from the rounded hyaline spot in space 3; an oval white, hyaline spot in space 4, a small hyaline dot in space 5 at outer edge of spot in space 4. Fringes yellowish-white.

Underside: Primaries, black over discal region, with grayish scales over apex and along costa; with a purplish sheen. Spots same as above; a black spot in space 6; another black spot directly below in space 4; a black spot in space 5 situated slightly outward from the other two black spots. Secondaries, grayish-black, only slightly lighter over basal half of wing; with a purplish sheen. White, hyaline spot in space 3 and spot in space 4; only half edged in black; small spot in space 5 completely edged in black; a black spot basad from the others in space 2, with a white pupil; a tiny black dot directly above, at end of cell.

Thorax: black above with some lighter hairs present, somewhat lighter beneath. Abdomen: black above, yellowish beneath. Head: grayish-black, white near eyes. Palpi: yellowish-white. Legs: yellowish-white. Antennae: shaft, checkered black and white half the distance to club, remainder black; club, white above, apiculus black, sordid yellowish-black beneath.

Wing measurements. Holotype male. Primaries: base to apex,

22.5 mm; apex to outer angle, 13.5 mm; outer angle to base, 15.5 mm. Secondaries: base to end of vein 3, 15 mm; center of costa to anal angle, 14 mm. Wing spread: 43 mm (average of paratypes, 43 mm).

FEMALE. Upperside: Primaries, black, some brown scales along costa. Three white, hyaline spots; cell spot straight on its inner surface, concave on its outer surface, 2.5 mm wide at costal side and 3.2 mm wide at dorsal side; spot in space 2 located directly beneath cell spot, straight on its outer surface, concave on its inner surface, 4 mm wide; a somewhat broadly columnar spot in space 3, 1.5 mm wide. Fringes, dark gray. Secondaries, brownish-black, the hyaline and opaque spots arranged as in male. Fringes, sordid white.

Underside: Primaries, dull grayish-black over discal portion of wing, brownish-black over remainder. Spots same as on upper surface; a black spot in space 4, another slightly outward in space 5; a black spot in space 6, slightly inward from the one in space 4. Secondaries, brownish-black, only slightly lighter in basal one-third of wing. Spots same as in male.

Thorax: brownish-black above, somewhat lighter beneath. Abdomen: black, some brownish hairs above, only slightly lighter beneath. Head: Brownish-black, white near eyes. Palpi: yellowish-white. Legs: brownish-black. Antennae: shaft black ringed with white; club, basal half white, remainder and apiculus black.

Wing measurements. Allotype female, primaries: base to apex, 23.5 mm; apex to outer angle, 14 mm; outer angle to base, 17 mm. Secondaries: base to end of vein 3, 18 mm; center of costa to anal angle, 15 mm. Wing spread: 47 mm.

HOLOTYPE male, Seven miles south of Valles, San Luis Potosi, Mexico, August 5, 1966, collected by H. A. Freeman, will be placed in the U. S. National Museum, Washington, D. C. Allotype female, same location and collector, August 7, 1966. There are four male paratypes from the same location, collected from July 31-August 7, 1966 by H. A. Freeman in a jungle section of the grounds of Hotel Covadonga. The allotype and paratypes will remain in my collection.

The primaries of both sexes of this new species somewhat resemble those of *floresi*, however the secondaries differ as to the spot arrangement as well as the ground color on the underside. In *mexicana* there are four white spots on the secondaries, while in *floresi* there is but one. The ground color is somewhat lighter beneath in *mexicana* than it is in *floresi*. The best way to positively identify *mexicana* is by its genitalia, which differ from other members of the genus in a definite manner (Plate 12, fig. 4).

Atrytone mazai Freeman, new species

(Plate 13, figure 1,2. Plate 15, figure 8)

MALE. Upperside: Primaries, bright orange-yellow, with a narrow (1-1.5 mm) dark marginal border. Veins black, with an indistinct, dark bar at end of cell. Fringes, sordid yellowish-white. Secondaries, bright orange-yellow, with costal margin, anal fold, and a very narrow marginal border, black. All veins black. Fringes, sordid yellowish-white.

Underside: Primaries, bright orange-yellow, basal half of space 1b and most of 1a black. Veins orange. Secondaries, bright orange-yellow, costa and anal fold orange; veins orange, contrasting with the more yellowish ground color.

Abdomen and thorax: dark brownish-orange above, yellowish-white below. Head: dark orange-yellow. Palpi: bright yellow, except at base, intermixed with white scales. Legs: orange-yellow. Antennae: shaft and club brown above, yellow beneath.

Wing measurements: Holotype male. Primaries: base to apex, 14 mm; apex to outer angle, 10 mm; outer angle to base, 11.5 mm. Secondaries: base to end of vein 3, 10.5 mm; center of costa to anal angle, 11 mm. Wing spread: 27.5 mm (average of paratypes, 27.5 mm).

FEMALE: unknown.

HOLOTYPE male, Mexcala, Guerrero, Mexico, 13 July 1956 (collected by Kent Wilson), will be placed in the U. S. National Museum, Washington, D. C. There are eight male paratypes, from the following locations: three from the type locality, same date and collector; one from Acuitlapan, Guerrero, 21 July 1956, same collector; one from Acahuezatlan, Guerrero, August 1948; one Tierra Colorado, Guerrero, September 1961; one Presidio, Veracruz, July 1951 (these last three were obtained from Dr. Escalante); and one from Laredo, Texas, 2 June 1935, collected by H. A. Freeman. Part of the paratypes will be returned to Dr. Escalante, and the rest will remain in my collection.

I take pleasure in naming this new species for Sr. Roberto de la Maza, Mexico, D. F., who is an enthusiastic collector of Lepidoptera.

Superficially *mazai* resembles *lagus* Edwards, the western subspecies of *logan* Edwards, in the narrow dark marginal border of both wings. In the coloration of the veins above it resembles *logan*, while *lagus* has the veins less conspicuously dark. The basic difference between *mazai* and *logan* or *lagus* lies in the coloration of the

secondaries on the under side. *A. mazai* has the costa and anal fold as well as the veins orange, contrasting with the orange-yellow ground color, while *logan* and *lagus* have this side of the secondaries uniform orange-yellow. The genitalia differ as can be determined by comparing figure 8, plate 15 of *mazai* with Godman & Salvin's (1900) figure of *delaware* (Edwards), which is a synonym of *logan* (Plate 94, figure 6) which was made from a specimen from the United States. Their figures 4 and 5 are from a specimen from Rincon, Guerrero and represent *mazai*.

In the United States *logan* and *lagus* are both found in the Dallas, Texas, area. In the Big Bend area of Texas only *lagus* occurs. I have never seen any examples of either from southern Texas. The male *mazai* that I collected at Laredo represents the only specimen of that species that I have seen from the United States.

Atrytone potosiensis Freeman, new species
(Plate 13, figure 3,4. Plate 15, figure 9)

MALE. Upperside: Primaries, dark orange-yellow, with a broad (2.5-3.0 mm), dark brownish-black marginal border. Space 1a dark brownish-black from marginal border to base; a dark bar at end of cell; veins black with some black scales parallel to them. Fringes, dark orange-yellow. Secondaries, dark orange-yellow, with costa, outer margin, base, and anal fold through space 1b, dark brownish-black. Veins black. Fringes, orange.

Underside: Primaries, bright orange, except base and space 1a to near outer angle, black, extending into space 1b in submarginal area. Secondaries, deep orange, veins yellow, contrasting sharply with ground color.

Abdomen: dark brownish-black above, bright yellow beneath. Thorax: dark brownish-black above, bright orange-yellow below. Head: orange. Palpi: yellow at tip, whitish near base. Legs: orange. Antennae: shaft and club deep orange above with a few black scales, orange-yellow below.

Wing measurements: Holotype male. Primaries: base to apex, 16 mm; apex to outer angle, 10 mm; outer angle to base, 11 mm. Secondaries: base to end of vein 3, 11 mm; center of costa to anal angle, 11.5 mm. Wing spread: 31.5 mm (paratypes average, 30.5 mm).

FEMALE: Unknown.

HOLOTYPE Male, seven miles south of Valles, San Luis Potosi, Mexico, 4 August 1966, will be placed in the U. S. National Museum, Washington, D. C. There are two male paratypes from the same location, one collected 28 July 1966, and the other 15 June 1967. All three specimens

collected by H. A. Freeman on the grounds of Hotel Covadonga.

This new species superficially looks somewhat like the females of *logan* Edwards. It can readily be separated from either *logan* or *mazai* by the much broader marginal border of the primaries and by the bright orange ground color of the underside of the secondaries, with the veins yellow instead of orange as in *mazai*, or the uniform color of *logan*. The genitalia readily separate this species from any of the other *Atrytone* (Plate 15, fig. 9).

Mellana montezuma Freeman, new species

(Plate 13, figure 5,6,7,8. Plate 15, figure 10)

MALE. Upperside: Primaries, with a broad, dark brown outer marginal border. A discal band of four broad, orange-yellow spots, one in space 1 extending from marginal border to base, completely filling space 1b; one in space 2 extends from marginal border to origin of vein 2; one in space 3 extending to dark bar at end of cell; and one in space 4 narrow, extending from marginal border to bar at end of cell; entire cell orange-yellow, some specimens having a dark line in the center; costa orange-yellow from base to apical spots; apical spots linear, fusing into the costal orange-yellow. Veins black. Space 5 brown from cell to marginal border. Fringes orange. Secondaries with a narrow brownish-black marginal border, costal area, and anal fold. A broad discal band of orange-yellow spots, one in space 1 extending from marginal border to near base of wing; one in space 2 extending from dark border to cell; one in space 3 triangular, extending from border to cell; one in space 4 extending from border to cell; and one in space 5 located directly over spot in space 4, extending approximately half the distance space 4 spot does. Entire cell orange-yellow, some specimens with some scattered black scales near base. Veins black. Fringes bright orange.

Underside: Primaries, bright yellow, with base and space 1a black. A large, black submarginal spot in space 1b, a smaller black, submarginal spot in space 2; dark bar at end of cell prominent; vein beneath cell and veins 2 and 3 black. Secondaries, bright orange-yellow, with the slightest indication of lighter discal spots.

Abdomen and thorax: brown above with some orange hairs, yellowish-white beneath. Head: brownish-black with some orange hairs. Palpi: yellowish-white. Legs: yellowish-orange. Antennae: shaft brown above, yellowish beneath; club brown above, yellowish beneath with apiculus reddish.

Wing measurements: Holotype male. Primaries: base to apex, 16 mm; apex to outer angle, 10.5 mm; outer angle to base, 12 mm. Secondaries: base to end of vein 3, 11.5 mm; center of costa to anal angle, 12 mm. Wing spread: 31 mm; paratypes range 30-33 mm, averaging 31 mm.

FEMALE. Upperside: Primaries, dull, dark brown, A rectangular yellowish-white hyaline spot in space 2, a somewhat smaller yellowish-white hyaline spot in space 3, outward from the spot in space 2. Cell spot varying from a single yellowish-white hyaline spot located over inner edge of spot in space 2 to a double cell spot, fused in the center; three well-defined yellowish-white apical spots in a straight line; a yellowish, opaque spot in space 1b, beneath inner edge of the spot in space 2; costa orange-brown from base to end of cell. A few basal orange scales and hairs. Fringes, ochreous. Secondaries, slightly redder brown, an orange cell spot and four small, orange, discal spots, one in space 2 slightly linear; one in space 3 minutely triangular; one in space 4 somewhat squarish; and one in space 5 also slightly squarish. Some ochreous hairs near base of wings. Fringes, ochreous.

Underside: Primaries, costa and apex ochreous-brown, remainder black. Opaque spot in space 1b broad, sordid white; spots in cell, spaces 2, 3, and apical ones white hyaline. Secondaries, ochreous-brown, with a yellow cell spot, and the four discal spots prominent and yellowish.

Abdomen and thorax: dark brown above, yellowish beneath. Head: dark brown, with some scattered ochreous scales. Palpi: yellowish at tips, remainder white. Legs: yellowish-brown. Antennae: shaft brown above, checkered yellow and black beneath; club yellowish at base, remainder black above, yellowish beneath, apiculus reddish.

Wing measurements: Allotype female. Primaries: base to apex, 18 mm; apex to outer angle, 11 mm; outer angle to base, 13.5 mm. Secondaries: base to end of vein 3, 13 mm; center of costa to anal angle, 12 mm. Wing spread: 35 mm; paratypes vary from 31-35 mm, averaging 34.5 mm.

HOLOTYPE male, seven miles south of Valles, San Luis Potosi, Mexico, 27 July 1966, will be placed in the U. S. National Museum, Washington, D. C. Allotype female, same location, 3 August 1966, will remain in the collection of H. A. Freeman. There are 25 male paratypes and nine female paratypes from the same location collected during June, July and August of 1966 and 1967. All specimens were collected by H. A. Freeman on the grounds of Hotel Covadonga.

This new species belongs in the *nayana* complex, which is characterized by having the apical spots forming a part of a series of streaks from spaces 6-11, joining up with the tawny costal area, and by having the fulvous markings rather extensive over both the primaries and secondaries. The nearest relatives are *nayana* (Bell) and *mulleri* (Bell) from which *montazuma* can readily be separated by the following characteristics: (1) the fulvous markings are more extensive in the males of *montezuma*; (2) in the males of *nayana* the fringes are rather dark at the base becoming

whitish at the tips; in the males of *nayana* they are dusky yellowish-white; while in *montezuma* they are bright orange; (3) *montezuma* is slightly larger than the other two species; (4) the under surface of the secondaries of the males differ--*nayana* is bright lemon yellow, *mulleri* is dull orange-yellow, both without spots, while *montezuma* is bright orange with the discal spots appearing faintly (5) in the females the discal, cell and apical spots of *montezuma* are much lighter, nearly white, than in the other two species; (6) the spots are better defined in the females of *montezuma* than in the other two; and (7) the genitalia of the males differ from any other species of *Mellana* (Plate 15, fig. 10).

Euphyes peneia (Godman, 1900)

This species was described from specimens collected in Panama. Evans states that *peneia* is a member of a group of *Euphyes* confined to central and South America, and records specimens in the British Museum from Honduras, Panama, Colombia, Venezuela, Tobago, Trinidad, British Guiana, French Guiana, western Ecuador (Manabi), Peru (Maranon), and Amazonas. In specimens received from Dr. Escalante there was a male *peneia* from Catemaco, Veracruz, August, 1965. This is the first record for this species from Mexico.

Euphyes chamuli Freeman, new species

(Plate 14, figure 1,2. Plate 10, figure 4)

MALE. Upperside: Primaries, dull dark brown. No maculation present. A prominent black stigma extending from base of vein 3 to middle of vein 1. Fringes are primarily dull, dark brown, becoming lighter at scale tips. Secondaries, dull dark brown. No maculation present. Fringes as on primaries.

Underside: Primaries, dull dark brown, slightly lighter just outside stigma. No maculation present. Secondaries, dull dark brown. No maculation present.

Abdomen and thorax: dull dark brown both above and below. Head: brown and golden yellow intermixed. Palpi: bright orange-yellow. Legs: dark brown. Antennae: shaft, black above, slightly yellowish beneath; club, and apiculus black above, yellowish beneath.

Wing measurements. Holotype male, Primaries: base to apex, 16 mm; apex to outer angle, 11 mm; outer angle to base, 11 mm. Secondaries: base to end of vein 3, 11.5 mm; center of costa to anal angle, 12 mm. Wing spread: 28.5 mm (average of paratypes, 29 mm).

FEMALE: unknown.

HOLOTYPE male, Santa Rosa, Comitán, Chiapas, Mexico, May 1965, will be placed in the U. S. National Museum, Washington, D. C. There are four male paratypes with the same data. These five specimens were sent to me by Dr. Tarsicio Escalante, Mexico, D. F. Two of the paratypes will be placed in the Escalante collection, and two will remain in my collection.

The species nearest related to *chamuli* is *vestris* (Bdv.) and it is possible to separate the two species in the following ways: (1) in size *chamuli* is the same as typical *vestris* from California, but runs just a little larger than the subspecies *metacomet* (Harris); (2) both *vestris* and *metacomet* are shining brown above, while *chamuli* is dark, dull brown; (3) there is a tendency toward maculation on the under side of both the primaries and secondaries in both *vestris* and *metacomet*, while this does not occur in *chamuli*; (4) there is a lighter area outside of the stigma in both *vestris* and *metacomet* which is absent or very indistinct in *chamuli*; (5) the palpi are more orange in *chamuli* than in *vestris* and *metacomet*; and (6) the genitalia are constantly different from *vestris* (Plate 10, fig. 4).

Tirynthia huasteca Freeman, new species

(Plate 14, figure 3,4,5,6. Plate 10, figure 5)

MALE. Upperside: Primaries, dark brown, with heavy suffusion of green hairs along costa from base to middle, in space 1 near base and along inner margin from base to two-thirds the distance toward outer angle. Three hyaline, yellowish-white, apical spots, the lowest one largest, middle one smaller, upper one a mere dot; two yellowish-white, hyaline cell spots of about equal size; an elongated yellowish-white hyaline spot in space 2 terminating slightly inward from cell spots; a yellow, hyaline spot in space 1b just beneath inner edge of spot in space 2; an elongated, yellowish-white, hyaline spot in space 3 terminating just above upper, outer margin of spot in space 2. Some specimens with a small yellowish-white hyaline spot in space 4 just above outer edge of spot in space 3. Fringes concolorous with ground color, becoming lighter at the scale tips. Secondaries, dark brown, with long green hairs over basal half of wing. Two elongated, yellowish-white, hyaline discal spots, one in space 2, and one in space 3. Fringes sordid yellowish-white.

Underside: Primaries, dark brown, ferruginous at apex. A few golden scales below costa just outside cell; a golden-yellow line below costa running from base to just above cell spots. All hyaline spots reappear, more golden-yellow than on upperside; a broad yellowish spot in space 1b. Secondaries, chocolate brown, heavily overscaled with golden. Discal spots darker yellow than on upperside, with a golden cast. Anal fold redder brown than rest of wing.

Abdomen and thorax: dark brown above with some greenish-golden hairs, sordid yellow beneath. Head: greenish-gold. Palpi: bright lemon yellow. Legs: femora, brown; tibiae, yellow and brown; and tarsi, yellow. Antennae: shaft, black, both above and below; club, basal half yellow both above and below, remainder and apiculus brown above and below.

Wing measurements. Holotype male, primaries: base to apex, 20.5 mm; apex to outer angle, 13 mm; outer angle to base, 13 mm. Secondaries: base to end of vein 3, 12 mm; center of costa to anal angle, 13 mm. Wing spread: 38 mm (paratypes vary from 34-39 mm).

FEMALE. Upperside: Primaries, just like male, except spot in space 2 broader, 4.5 mm wide. Secondaries, just like male.

Upperside: Primaries, just like male, except yellowish spot in space 1b broader and somewhat paler. Secondaries, just like male.

Abdomen, thorax, head, palpi, legs, and antennae same as in male.

Wing measurements. Allotype female, primaries: base to apex, 22 mm; apex to outer angle, 14 mm; outer angle to base, 16 mm. Secondaries: base to end of vein 3, 14 mm; center of costa to anal angle, 13 mm. Wing spread: 43 mm.

HOLOTYPE Male, seven miles south of Valles, San Luis Potosi, Mexico, 7 August 1966. Allotype female, same location, 6 August 1966. There are three male paratypes from the same location, one 10 June 1966, one 5 August 1966, and one 7 August 1966. All specimens were collected on the grounds of Hotel Covadonga by H. A. Freeman. The Holotype will be placed in the U. S. National Museum, Washington, D. C. The allotype and paratypes will remain in my collection.

This new species differs from the other species in the genus *Tirynthia* by not having the white band on the lower surface of the secondaries from mid costa to vein 1b, and by having a double cell spot. The genitalia differ from the other species (Plate 10, fig. 5).

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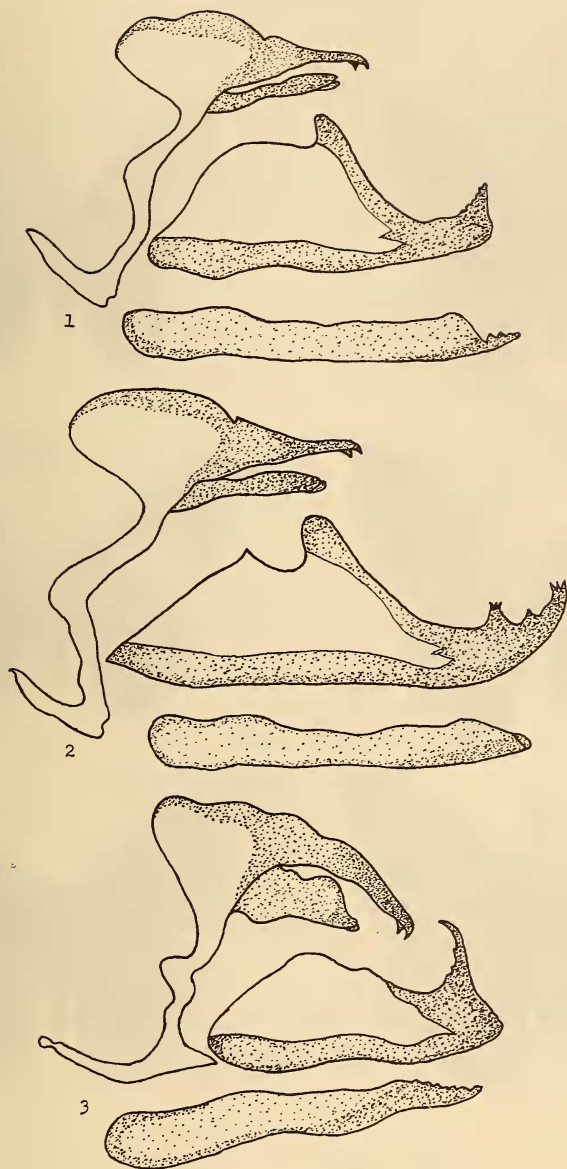
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Explanation of Plate I

Figs. 1 and 2, *Pyrrhopyge tzotzili* Freeman, Holotype ♀, Ocozingo, Chiapas, Mexico, July, 1942; 3 and 4; *Epargyreus windi* Freeman, paratype no. 1 ♂, Ajijic, Jalisco, Mexico, 12 September 1965; 5 and 6, *Epargyreus brodkorbi* Freeman, Holotype ♂, Union Juarez, Chiapas, Mexico, 19 March 1939; 7 and 8, *Astraptus louiseae* Freeman, Holotype ♂, Presidio, Veracruz, Mexico, August, 1951.



Explanation of Plate 2

Male genitalia of Mexican Hesperiidæ. Fig. 1, *Epargyreus windi* Freeman; 2, *Epargyreus brodkorbi* Freeman; 3, *Astraptes louiseae* Freeman.



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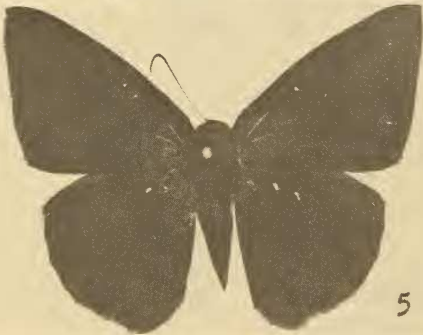
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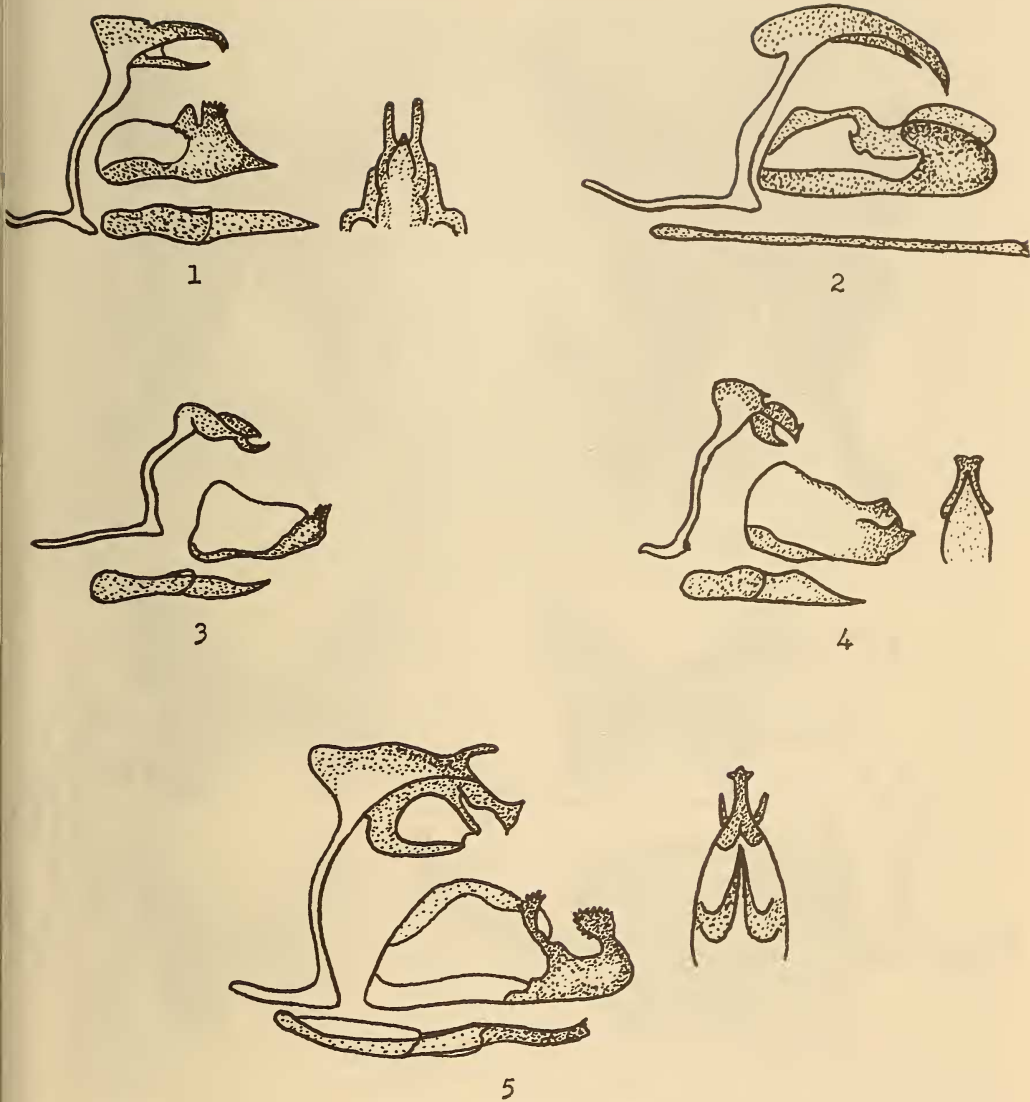
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Explanation of Plate 3

Figs. 1 and 2; *Astraptes gilberti* Freeman, Paratype ♂, Victoria, Tamaulipas, Mexico, 8 June 1966; 3 and 4, *Astraptes gilberti* Freeman, Paratype ♀, 7 miles south of Valles, San Luis Potosi, Mexico, 3 August 1966; 5 and 6, *Aethilla chiapa* Freeman, Holotype ♂, Ocozingo, Chiapas, Mexico, August 1958.



Explanation of Plate 4

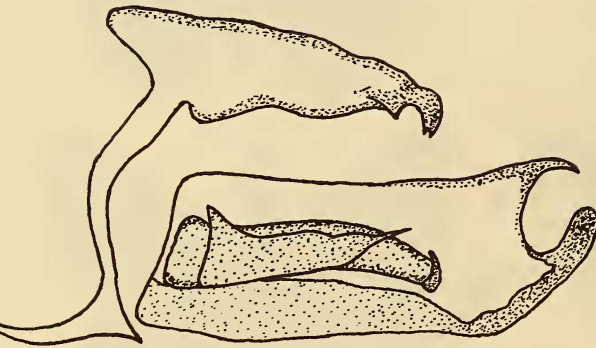
Male genitalia of Mexican Hesperiiidae. Fig. 1, *Astraptus gilberti* Freeman; 2, *Dalla ramirezi* Freeman; 3, *Vettius argentus* Freeman; 4, *Niconiades comitana* Freeman; 5, *Aethilla chiapa* Freeman.



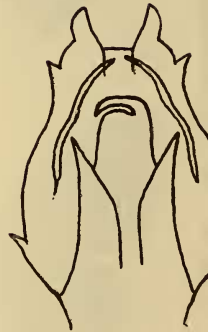
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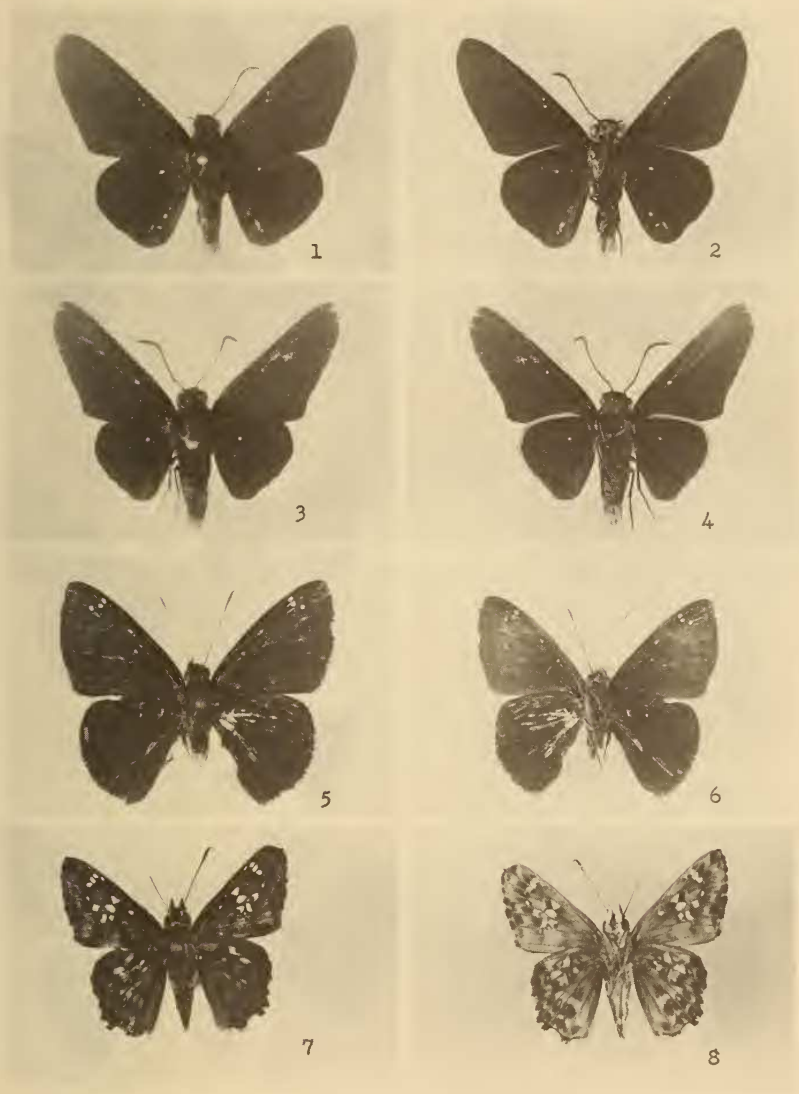
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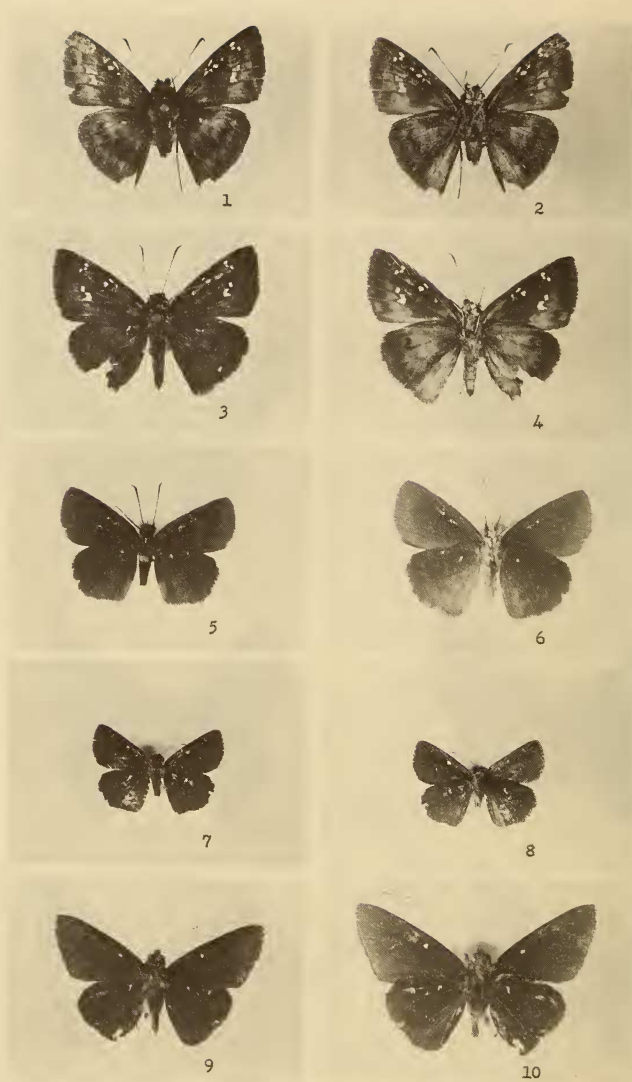
Explanation of Plate 5

Fig. 1, Upper side, *Polythrix mexicanus* Freeman, Paratype ♂, Valles, San Luis Potosi, Mexico, 30 July, 1966; 2, Under side, *Polythrix mexicanus* Freeman, Paratype ♂, Valles, San Luis Potosi, Mexico, 30 July, 1966; 3, Male genitalia of *Polythrix mexicanus* Freeman, showing tegumen, uncus, aedeagus, and inner aspect of left valva. Drawing made from Paratype, Valles, San Luis Potosi, Mexico, 29 July, 1966; 4, Male genitalia of *Polythrix mexicanus* Freeman, showing under side of tegumen and uncus, with the aedeagus in natural position.



Explanation of Plate 6

Figs. 1 and 2, *Mysoria wilsoni* Freeman, Paratype ♂, Mexcala, Guerrero, Mexico, 22 July 1956; 3 and 4, *Mysoria affinis* (H.-S.) ♂, Tepic, Nayarit, Mexico, September, 1964; 5 and 6, *Mimia chiapaensis* Freeman, Holotype ♂, Santa Rosa, Comitan, Chiapas, Mexico, May, 1965; 7 and 8, *Windia windi* Freeman, Holotype ♂, Salada, Colima, Mexico, 19 June 1967.



Explanation of Plate 7

Figs. 1 and 2, *Quadrus francesius* Freeman, Holotype ♂, Santa Rosa, Comitan, Chiapas, Mexico, May 1965; 3 and 4, *Quadrus francesius* Freeman, Allotype ♀, Comitan, Chiapas, Mexico, September 1962; 5 and 6, *Staphylus zuritus* Freeman, Holotype ♂, Cintalapa, Chiapas, Mexico, 17 August 1964; 7 and 8, *Staphylus veytius* Freeman, Holotype ♂, Cintalapa, Chiapas, Mexico, 17 August 1964; 9 and 10, *Enosis matheri* Freeman, Holotype ♂, Catemaco, Veracruz, Mexico, December, 1963.



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Explanation of Plate 8

Figs. 1 and 2, *Dalla ramirezi* Freeman, Holotype ♂, Catemaco, Veracruz, Mexico, August 1958; 3 and 4, *Vettius argentus* Freeman, Holotype ♂, Santa Rosa, Comitan, Chiapas, Mexico, May, 1965; 5 and 6, *Niconiades comitana* Freeman, Holotype ♂, Comitan, Chiapas, Mexico, July, 1964.



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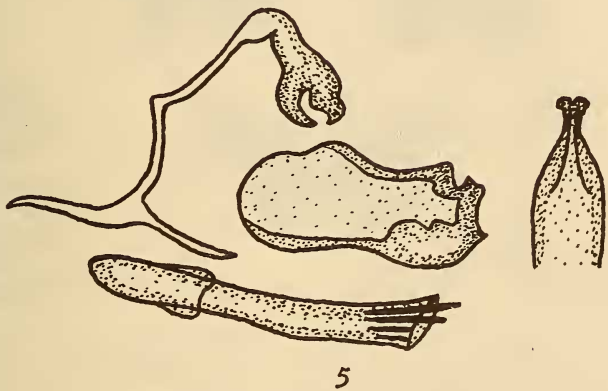
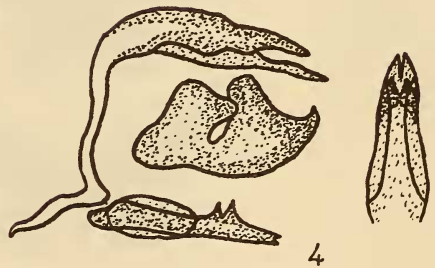
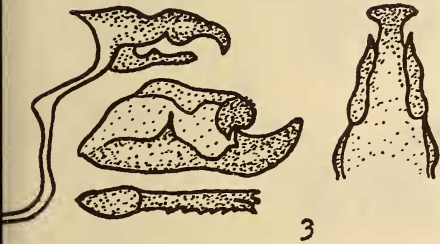
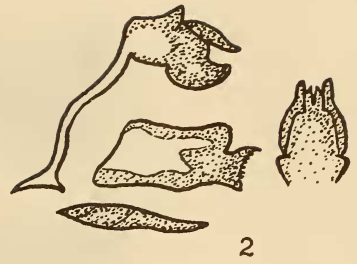
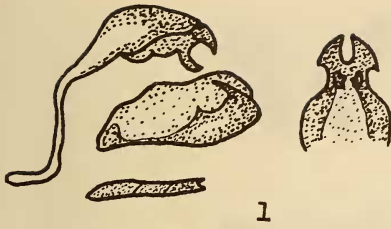
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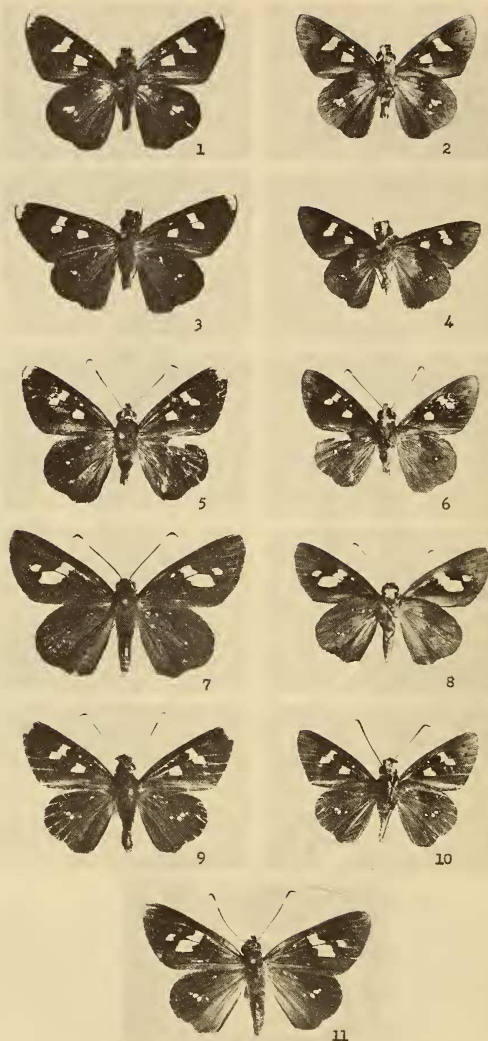
Explanation of Plate 9

Figs. 1 and 2, *Anthoptus macalpinei* Freeman, Holotype ♂, Fortin de las Flores, Veracruz, Mexico, 26 September 1966; 3 and 4, *Pheraeus covadonga* Freeman, Holotype ♂, grounds of Hotel Covadonga, 7 miles south of Valles, San Luis Potosi, Mexico, 10 June 1966; 5 and 6, *Pheraeus covadonga* Freeman, Allotype ♀, same locality, 5 August 1966; 7 and 8, *Cynea nigricola* Freeman, Holotype ♂, Santa Rosa, Comitan, Chiapas, Mexico, May, 1965.



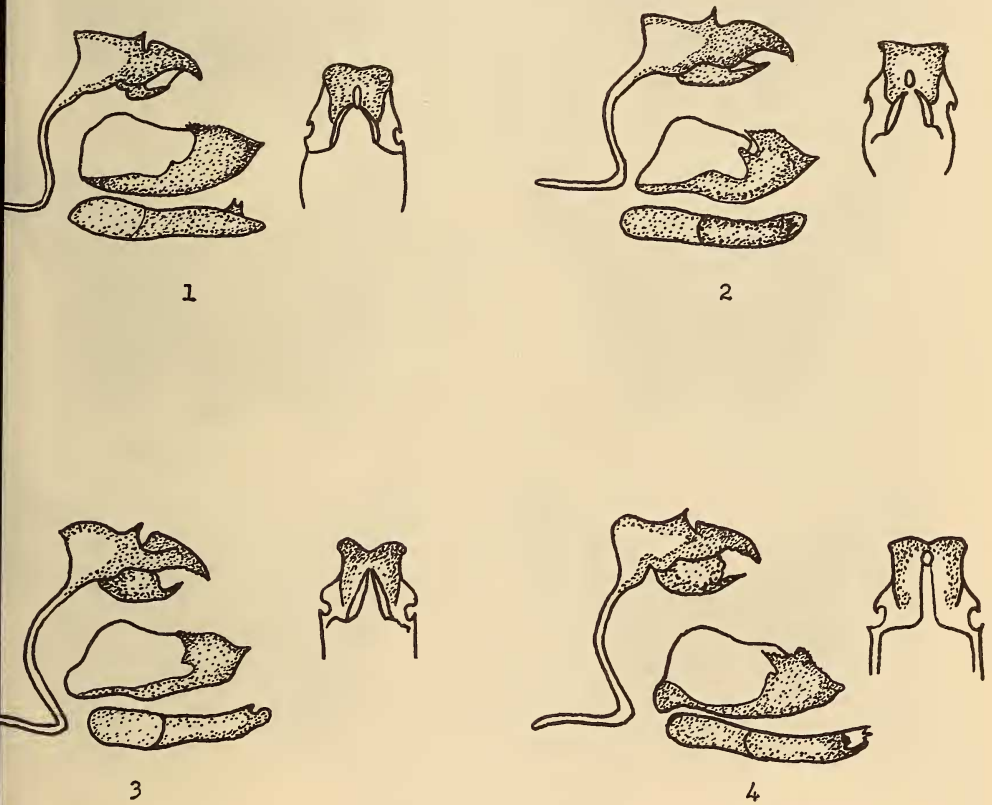
Explanation of Plate 10

Male genitalia of Mexican HesperIIDae. Fig. 1, *Anthoptus macalpinei* Freeman; 2, *Pheraeus covadonga* Freeman, 3, *Cynea nigricola* Freeman; 4, *Euphyes chamuli* Freeman; 5, *Tirynthia huasteca* Freeman.



Explanation of Plate 11

Figs. 1 and 2, *Carystoides escalantei* Freeman, Holotype ♂, Villa Juarez, Puebla, Mexico, August, 1954; 3 and 4, *Carystoides abrahami* Freeman, Holotype ♂, Catemaco, Veracruz, Mexico, July, 1951; 5 and 6, *Carystoides floresi* Freeman, Holotype ♂, grounds of Hotel Covadonga, 7 miles south of Valles, San Luis Potosi, Mexico, 4 August 1966; 7 and 8, *Carystoides floresi* Freeman, Allotype ♀, same locality, 7 August 1966; 9 and 10, *Carystoides mexicana* Freeman, Holotype ♂, same locality, 5 August 1966; 11, *Carystoides mexicana* Freeman, Allotype ♀, same locality, 7 August 1966.



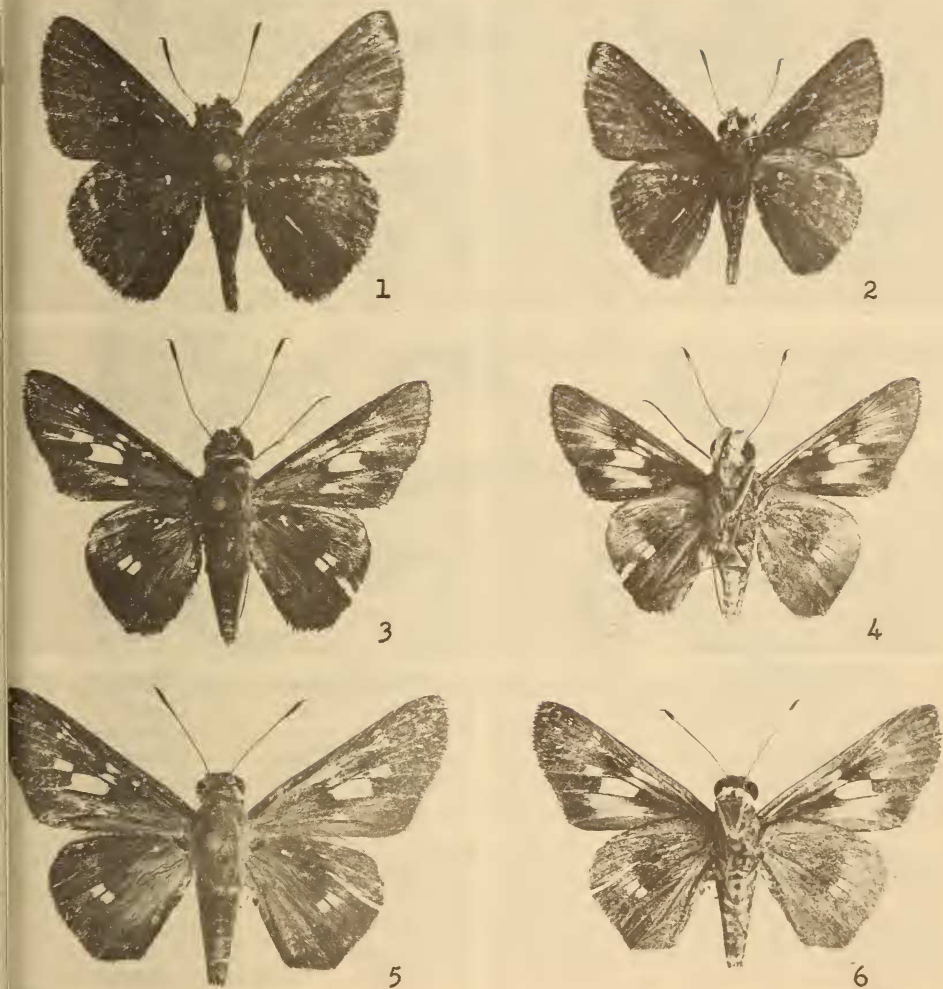
Explanation of Plate 12

Male genitalia of Mexican HesperIIDae. Fig. 1, *Carystoides escalantei* Freeman; 2, *Carystoides abrahami* Freeman; 3, *Carystoides floresi* Freeman; 4, *Carystoides mexicana* Freeman.



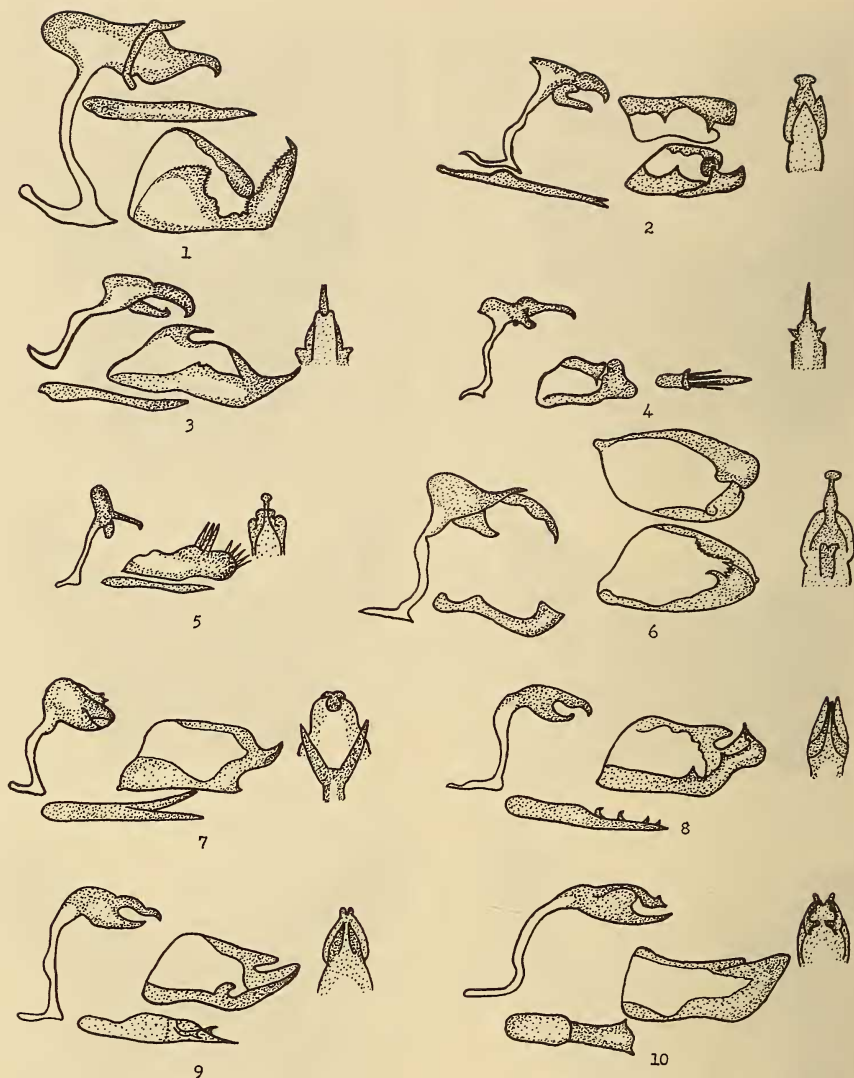
Explanation of Plate 13

Figs. 1 and 2, *Atrytone mazai* Freeman, Holotype ♂, Mexcala, Guerrero, Mexico, 13 July 1956; 3 and 4, *Atrytone potosiensis* Freeman, Holotype ♂, grounds of Hotel Covadonga, 7 miles south of Valles, San Luis Potosi, Mexico, 4 August 1966, 5 and 6; *Mellana montezuma* Freeman, Holotype ♂, same locality, 27 July 1966; 7 and 8, *Mellana montezuma* Freeman, Allotype ♀, same locality, 3 August 1966.



Explanation of Plate 14

Figs. 1 and 2, *Euphyes chamuli* Freeman, Holotype ♂, Santa Rosa, Comitán, Chiapas, Mexico, May, 1965; 3 and 4, *Tirynthia huasteca* Freeman, Paratype ♂, grounds of Hotel Covadonga, 7 miles south of Valles, San Luis Potosí, Mexico, 5 August 1966; 5 and 6, *Tirynthia huasteca* Freeman, Allotype ♀, same locality, 6 August 1966.



Explanation of Plate 15

Male genitalia of Mexican Hesperilidae; lateral aspect of tegumen and associated structures, inner face of valva, and ventral view of uncus. Fig. 1, *Mysoria wilsoni* Freeman; 2, *Mimia chiapaensis* Freeman; 3, *Quadrus francesius* Freeman; 4, *Staphylus zuritus* Freeman; 5, *Staphylus veytius* Freeman; 6, *Windia windi* Freeman; 7, *Enosis matheri* Freeman; 8, *Atrytone mazai* Freeman; 9, *Atrytone potosiensis* Freeman; 10, *Mellana montezuma* Freeman.